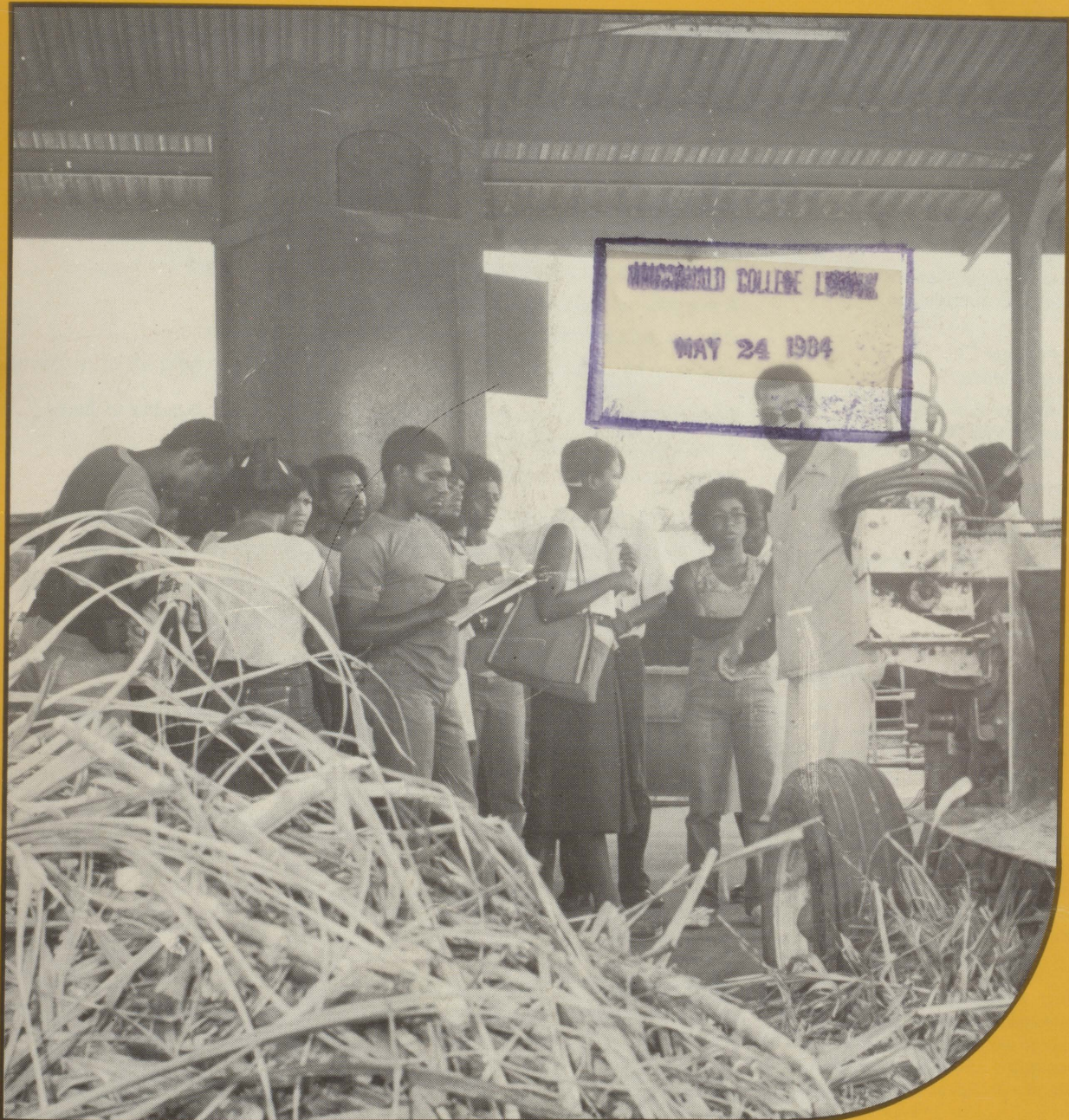


THE MACDONALD JOURNAL

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THE MACDONALD JOURNAL

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This Issue

Dr. W.F. Hirschfeld sets the tone for this "special issue" by giving us an insight into McGill International	2
Notice of an important up-coming conference to be held in Montreal	3
Former Dean George Dion speaks out on international development	4
Eugene Donefer discusses the growing links between Macdonald and China ..	7
Bruce Downey takes a close look at animal production in Northeast China ..	8
Is consulting beneficial? Professor Gerry Millette says "yes" most emphatically!	11
Pierre Jutras sends us a letter from Senegal	13
Two different research projects in Jamaica are discussed	14
Diet and heart disease: another point of view from Israel	15
A successful project for Zambia — a solar food drier	16
One young Liberian's determination to study is described	18
Last summer's popular HIC program at Macdonald solved a lot of problems ..	23
Tom Thompson talks about some Mac graduates from Alberta to Zaire	24
P. van der Wel sends a letter from Holland	24
Some interesting comments from a graduate student from St. Lucia	26
A proposed international agriculture program is described by Professor Donefer	27
CUSO's Joan Tuck takes us to Mozambique, Sudan, and Papua New Guinea	28
A fascinating study of the development and performance of generic foods	31
Garth Coffin takes the Journal's first look at CANAGREX	35
Again this year — Farmers' Days at Macdonald	37
Briefly, we introduce Macdonald's Extension Co-ordinators	37
Students from Mexico, Trinidad and Tobago, and the United States are all working on hydroponics research	38

Features

Prof Profile	19
Fun Fact Fable Fiction	30
Diploma Corner	40
Seeking Solutions	42
Newsmakers	43

Cover Story

If the response to our International Issue from our readers is anywhere near the enthusiasm shown by our contributors, then we have a successful and worth-while Journal. Our photo, taken in Trinidad at the Sugarcane Feeds Centre which was established by McGill under contract to CIDA, is by Professor Eugene Donefer, who is well known for his work in other countries as well as his efforts on this campus to promote interest and involvement in international agriculture among his colleagues and students. His assistance for this issue has been invaluable, as has been that of Professor Howard Stepler, and other staff who have shared their ideas and experiences. We could not include all international students on this campus, all graduates who have gone beyond Canada's borders, all consulting work or research endeavours in developing countries, or all staff that are or have been directly involved in the betterment of the world's agriculture, food, and environment. We have attempted to give readers a sample of all of the above with one aim: to show that, through the staff, students, and graduates, Macdonald is a strong and viable force in international development.

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McGILL INTERNATIONAL

by Dr. W.F. Hitschfeld
Director
McGill International

McGill International is the office that the University established in 1980 to help those among us who are interested in Third World development to find funds and to organize our activities a little more efficiently. We try to encourage a wide proportion of McGill professors from all areas of the University to lend a hand in development activities. This interaction is often done through our six regional advisory groups for Africa, the Caribbean, China, Latin America, the Middle East, and South and Southeast Asia.

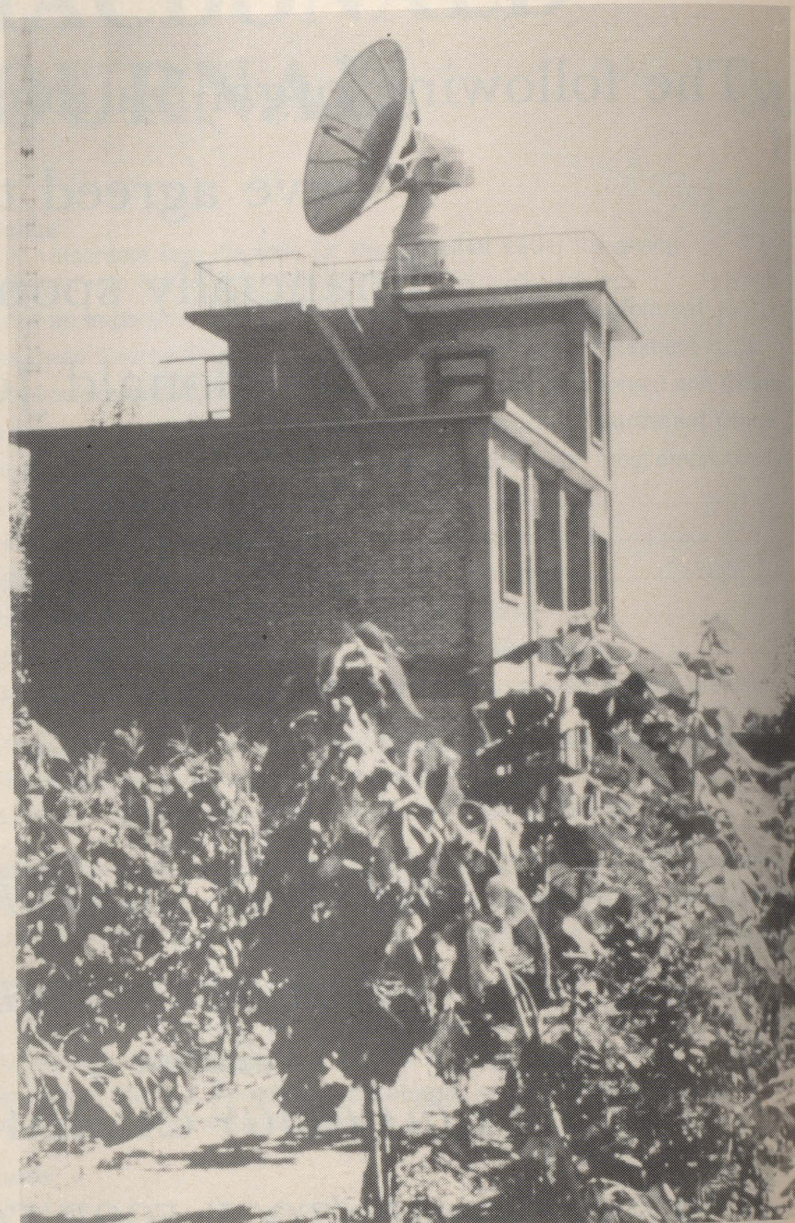
Staff at Macdonald College have long been conscious of production and nutrition problems throughout the world. Faculty of Agriculture professors are aware of the fact that many of the techniques of agricultural development and rural improvement which they have long been advocating and implementing for Canada are quite applicable in many other places. McGill International is working with them to insure that these applications happen!

Opportunities abound and even money — from international sources and from Canada's development agencies — is not scarce. What is more difficult is to locate the situations in the Third World where we can best help, where we can contribute the best solutions, and where we ourselves can afford to make the effort, since clearly we cannot allow the quality of our teaching and research here to diminish. This can be a real bind since our resources have been cut to the bone while our teaching and research loads have continued to rise. A particular task for us, therefore, is to promote the availability of staff in Agriculture (regular, auxiliary, technicians, etc.) to enable us to expand our contribution to international agriculture.

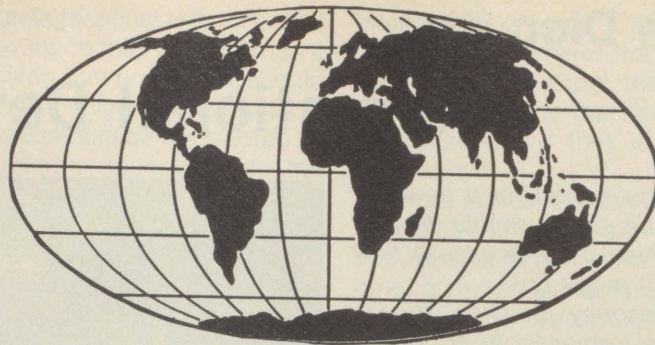
An equally important aspect is to identify Third World institutions and people with whom we should work. This can only be done through personal contact, and through working together on projects, many of which

are small. During the last three years, for example, the Royal Bank has sponsored some 30 projects in the Caribbean to help economic and agricultural development in the islands. Other areas of recent McGill International involvement in projects include China, India, Ecuador,

Singapore, Pakistan, and Nigeria. All overseas engagements are useful to McGill and to our community because of the experience our staff gather from them and because of the contacts they make — contacts which should make a modest contribution to better international understanding.



McGill International projects are varied: above, a vegetable garden grown by weather radar technicians in Ping-liang, China; above, opposite page, the testing of a hybrid cross of napier grass and millet for high protein yield potential in Jamaica and, below, in Papua New Guinea studies are being conducted in genetic epidemiology of leprosy of the Dadibi people.



THE RIGHT TO FOOD CONFERENCE

**by Professor Stuart Hill
Department of Entomology**

This high-profile, international conference on freedom from hunger will be held at Concordia University in Montreal from May 25-31, 1984. Over 60 experts from 20 countries will be participating in daytime and evening sessions which are arranged to provide parallel "technical" and "public" presentations. Sessions will focus on nutrition, policy, future projections, land, water, human rights, and sustainable systems of production.

Macdonald College staff will be well represented: Professor Howard Stepler of the Department of Plant Science is a member of the Conference Planning and Program Committee and played an instrumental role in the design of the Conference. Professor Eugene Donefer from the Department of Animal Science will be one of the respondents to Dr. John Yudkin's presentation on nutrition. Professor A.F. MacKenzie, Associate Dean of Research and Professor in the

Department of Renewable Resources, is co-ordinating and chairing a session on Food and Land. Professor Stuart Hill of the Department of Entomology and Advisor to the Ecological Agriculture Project is co-ordinating and presenting a paper at the session on Sustainable Production, and different displays are being co-ordinated by Professor Shirley Weber, Director of the School of Food Science, and Professor Jean David, Associate Dean of Student Affairs and Public Relations.

One of the most interesting displays will be a life-size Third World village, which will be presented by the Canadian International Development Agency. The displays and a continuous series of films on hunger will be open to the public free of charge.

The Conference is being organized by the Canadian Associates of the Ben-Gurion University of Negev. For further information contact them at Suite 330, 4141 Sherbrooke St. West, Montreal, Que. H3Z 1B8 (Telephone 514-937-8927).



International Development

"My first requirement for a development project is that it should do very little harm. Next I try to assess how much good it might do."

This philosophy belongs to Dr. George Dion, former Professor of Soil Science and Dean and Vice Principal of Macdonald College from 1955 to 1971. Prior to 1954, when he came to Macdonald as a Professor in Soil Science, Dr. Dion was with FAO (Food and Agriculture Organization of the United Nations). Since 1971 he has been an Agricultural Advisor to CIDA (Canadian International Development Agency). George Dion visited Macdonald recently and in this, the first of two articles, he discusses international development and Macdonald's role in that development with Dr. Howard Steppler, Chairman of the Department of Plant Science.

Howard Steppler Right from the beginning with Dr. DuPorte in the first graduating Class of 1913 we have had students from outside Canada and from what we call developing countries. Is there a particular period when you think we peaked as far as our association with international students is concerned?

George Dion Our relationship with the Caribbean stemmed from the feeling that the old Imperial College of Tropical Agriculture, which became the Faculty of Agriculture in the University of the West Indies, was primarily a place for British colonial service applicants to qualify in tropical agriculture. It wasn't felt to be a place for black West Indians to study, and we had more West Indian students at Macdonald than they had in Trinidad for a long time. That attitude has changed in the Caribbean, thank God, and they are training their own agricultural specialists and not having to rely on Macdonald or any other institution in North America.

The proportion of students from other countries has been fairly constant and concentrates primarily on graduate work. The number of people from around the world who did their post graduate degrees at Macdonald is very impressive, indeed, but that has



Visiting from Ottawa Dr. George Dion, fourth from left, had a "Journal luncheon" with, left to right, Professors Gerry Millette, Helen Neilson, Dr. L.E. Lloyd, and Professor Howard Steppler. They discussed International Development for this issue as well as the "Dion Years" for a later one.

probably reached its peak and is going down as I feel it should. One thing I firmly believe is that every country that has a major agricultural industry should have its own faculty of agriculture and produce its own researchers. Further, I don't think there is any justification to train students from third world countries at the undergraduate level in Canada. If we want to get involved in that level of training, we should reinforce their institutions by some kind of twinning arrangement. In general we do more harm than good by bringing students over here and exposing them to a three-to-five-year training period in Canada, and making good Canadians out of them, and then sending them back to their own countries.

We should encourage each faculty of agriculture to have its own graduate faculty and we should be prepared to assist them in training their own researchers as much as possible. There will always be certain specialized fields that relatively small universities will not be able to support. We send some of our own specialists to other institutions to learn particular skills and disciplines that we don't have here. I don't think

that there is a long-term need for any faculty of agriculture in Canada to devote itself to the task of training Third World students in agriculture or food science. Our function should be to assist their institutions to do it themselves. We have a temporary function to assist in training some of their staff members until they become established.

Howard Steppler Do you see a continuing function for staff exchanges between this Faculty and faculties in developing countries — in sabbatical leave arrangements where staff can get recharged and get exposed to different ideas?

George Dion That's a perfectly rational function and one that should be pursued. The business of reinforcing institutions overseas has not had the kind of attention that it should have in the Canadian context. There are some outstanding examples of good cooperative arrangements between Canadian universities and Third World universities but not nearly enough of them. The institution that has probably

one the most in supporting other institutions is the University of Manitoba. Each faculty of agriculture in Canada, for instance, should be twinned with some institution in a developing country for say a period of 20 years. The next 10 to 15 years of that relationship might very well be the kind of relationship that you are talking about: the exchange of staff for a year at a time, sabbaticals, short-term service, and so on.

Howard Steppler *How is a faculty going to fulfil the kind of twinning role you just described without that role becoming a fairly major commitment?*

George Dion I don't see a problem as long as there is a timetable which says the faculty is going to be doing this for a long time and had better be staffed accordingly. It is obvious that if a development agency such as CIDA comes to a university and asks it to take on a major function at a university in a developing country, the university is going to say no, we don't have the staff, and that is exactly what is happening. In order that twinning does not disturb part of the university's activities, it must be done with foresight, planning and some sense of security of staff or it is not going to be done well. One of CIDA's troubles is that it thinks almost anything can be accomplished within the confines of a five-year period. Five years as far as university assistance from one institution to another is just long enough to get yourself into trouble. It is not long enough to recruit staff for a continuing function. That must be foreseen as a 15- to 20-year program for any twinning arrangement.

Howard Steppler *We have individual staff members involved in international activities but this does not add up to Faculty involvement. What you are talking about is a formal commitment of a faculty and an agreement from a donor agency that it recognizes that and assists the faculty in staffing so that the commitment can be fulfilled.*

George Dion I would even put it a little stronger. I would say it depends on the contract between CIDA as a development agency, for instance, and a university which requires a faculty of that university to do certain things in pursuit of the stated objectives, and

there is a basic responsibility on behalf of the university to fulfil its obligations. I am not saying that an agency should help with what a university wants to do; the university should be contracted by the development agency to do the things the agency wants to do.

Howard Steppler *I'll accept that. Whenever international aid or aid to developing countries is discussed there can be two responses; some people say they are all for it because it is going to help the recipient; others are all for it because they can see some benefit for Canada or for the donor. Do you see aid as mutually exclusive or as compatible?*

George Dion Compatible and complementary. You can't get involved without broadening your appreciation of the problems. As Gerry Millette pointed out recently, one of the first things that development work teaches you is a little humility at how little you know. When we go into tropical regions we have to say that all of the things that we learn as "fact" in soil science are simply not true, and that removes the basis on which we hoped we would be able to bring some earth shattering conclusions to bear. There aren't any, but we have several things in North America which are important in development areas. One of them is the capacity of not being frightened off by problems — there are problems which are susceptible to attack and one should attack them. In many parts of the world the philosophy is that this is the way things are, and we had better learn to live with them. Part of what we contribute is a concept that there is something that can be done. Let's work together to do it.

The experience that one gains from work overseas is very important but that is certainly not a basis on which an aid program can be justified. The program has to be justified on the basis of what happens. What are the results, what benefits have been achieved as a result of the effort of the people involved, and the time and money that has been invested. I am very critical about the kind of publicity that development programs get. There is never anything on television or in the press that isn't some kind of development disaster. Things that work well are never publicized, and CIDA does a very poor job of informing the Canadian

public of what it does. If every development project that was undertaken was successful, then one would have to conclude that the program is so conservative that it is afraid of innovations.

There is a Canadian/FAO story that took place in Ethiopia in the late 40s and early 50s that I like to tell. FAO hired a retired Canadian, Dr. E.S. Archibald, to act as agricultural adviser to the Ethiopian government of Haile Selassie. FAO was trying to get a campaign against Rinderpest going to prevent the loss of cattle caused by this terrible plague, but they were not having much success. For some eight to 10 years the program was blocked either by people in the Ministry of Agriculture or by the local officials who had to deal with the tribesmen. There was always some excuse. A great deal of frustration and other problems developed among the FAO team of veterinarians and their families, but FAO encouraged them to stay and fight. In many well run systems after eight or 10 years of this kind of failure and frustration one might write the whole thing off and say that's a failure, but, in fact, they eventually did start to vaccinate the cattle and did so for the next three years. The estimate was that they prevented losses of about one million head per year.

Could it have been done another way? Nobody can answer that question, but the point I want to make is that the value of the one million cattle a year that were saved was enough to pay for trials with many new innovations.

The development business is like trying to make your living by betting on horses at the track. You learn when you are betting on horses that you don't win every bet, but occasionally you make enough money on a long shot to cover a great many bets in the future. That's the way agricultural development works.

Howard Steppler *Having a background in soils, I am sure you are aware of the activities and interest in ecological agriculture, biological agriculture, and sustainable systems. When you encounter problems in Bangladesh, India, Zambia, or Tanzania, do you ever think of an ecological solution?*

George Dion My ecological solutions

include fertilizers, insecticides, and fungicides as are necessary. The right answer would be to hope that ultimately plant breeders can develop varieties of crops that are impervious to the attacks of pathogens and insects and thus make the insecticides and fungicides unnecessary. We are going to continue to have a problem with weeds and will still have to use herbicides. We are certainly going to have to use fertilizers, particularly the nitrogenous fertilizers on which plant protein is based. If we have to turn our backs on chemical fertilizers. I think we could say that our world's population would probably have to be cut in half. I don't think of that as a sound ecological solution.

Howard Steppler *Back to Macdonald. Many of our students at both the undergraduate and graduate levels are interested in careers in developing countries. Up to the undergraduate level, what would you consider as adequate training for a Canadian student?*

George Dion For service overseas most of our undergraduates are over specialized. A good general education in production agriculture or food science would be the most appropriate base. I say that with hindsight, as I don't think that I have worked as a soil scientist in the last 30 years — since FAO time. Most of the things that I have been involved with have required a much broader knowledge and experience in agriculture than any specialization would have given. Nevertheless, being a soil scientist didn't prevent me from learning!

My advice? Forget the volunteer and other non governmental organizations. If one wants to make a career, there is no substitute for staying at home and doing the best you can in your discipline so that you can earn a national and perhaps an international reputation. Then when someone is needed for a position overseas, your name may come up.

The ideal person for development work has a long grey beard — if it's a man — about 100 years of experience, speaks five languages, and has the vigour of a 20-year-old. He or she doesn't exist, but basically the man or woman that is being pursued is someone with demonstrated capabilities, recognized in his or her discipline, and with enough experience

so that there are not going to be too many big mistakes made. You don't learn all that in a university, not as a student. You learn it on the job, unfortunately, and you can get your apprenticeship as well in Canada as you can overseas.

Howard Steppler *I am a little concerned with your statement that our undergraduates may be over specialized, because I think it depends on what they have in view for a career. If it is a general one in terms of agricultural development, I agree with you. If, in fact, they want to work on the problems of tropical pest control, then I think they had better know something about entomology.*

George Dion Agreed!

Howard Steppler *You left Macdonald in 1971. What are some of the high points of your years with CIDA?*

George Dion When I went to CIDA I was the only agriculturist on staff even though agriculture was a major part of its development effort. I take pride in the fact that CIDA now has approximately a dozen people with agricultural degrees working in agriculture. That's a lot more than one, Howard, because you were the one before me, and the programs that I take the most satisfaction in are the ones that you started: the CIDA support for the International Agricultural Research Centres and the CIDA assistance for the triticales program. That is certainly going to be a major world crop, and it is in commercial production in a very significant number of countries now.

Though controversial, one of the projects that I delight in is the Tanzania wheat project which produces millions of loaves of bread a year. Nobody can say that's a bad thing, although it comes in for a lot of criticism because it is suggested that the technology that we are helping the Tanzanians use to raise wheat is much too complicated.

Iranian Visitors

During the past year, Iran purchased 1,600 head of Holsteins and a large volume of semen in Canada. Associated with the sale of semen, "Semex Canada" arranged courses in artificial insemination and milk recording for Iranian Ministry of Agriculture staff. Four Iranians spent three weeks at Macdonald College with DHAS last October learning the basics of a milk recording system. In recent years, milk recording has been neglected in Iran, and this is an attempt to initiate a milk recording service with the dairy cattle they are now importing.

They shouldn't have 300 horsepower tractors dragging 50 feet of cultivation equipment behind them. No, they should be doing it with oxen at their stage of development! If they were going to grow wheat with oxen, they wouldn't be growing wheat at all; the only way that it can be done is the mechanized route. CIDA should not accept the blame for operating a 10,000-acre wheat farm there, since the original plantation was established by the government of Tanzania after their independence. They started to grow wheat, ran into trouble and asked the Canadian government for assistance. We have been helping them ever since and haven't had a crop failure!

Howard Steppler *You are just back from a trip — what warm climate where you in?*

George Dion I was doing a job in East Africa which CIDA is working on in conjunction with the Corporation for Development in Africa. That seven country consortium, of which Canada is a member, is committed to work in a limited number of sectors, one of which is agricultural research. That sector was divided into four ecological zones and the East African one was delegated to CIDA. Two of us from CIDA have been exploring research development possibilities in six countries: Ethiopia, Uganda, Rwanda, Somalia, Burundi, and Kenya. As an example, we see the possibility of a six country program getting started for the improvement of bean production through bean breeding in East Africa. We think we can get some programs going, people trained, and some facilities made available that the countries can afford. The "afford" part is important because agricultural research policy is made by Ministries of Finance and Economic planning since they allocate funds. If they don't believe in the projects, it is not realistic to have overly large ambitions for agricultural research.

Macdonald College Programs in China

by Professor Eugene Donefer
Department of Animal Science

During the summer of 1982 four Macdonald faculty members (B. Baker, E. Donefer, J. Moxley, and P. Jutras) were part of a Canadian team involved in an agricultural development project in the People's Republic of China. The Northern Pasture and Livestock Development project is a scheme of the Chinese Government for increasing production of milk, beef, and sheep in the northeast part of the country, which includes the Provinces of Hebei and Heilongjiang and Inner Mongolia. For periods up to two-months, Canadian team members visited many of the project sites located on state farms and peoples' communes and became involved in giving lectures to groups of farm technicians and administrators (aided, of course, by competent Chinese interpreters). Members also reviewed the five-year development plans of the different production units and offered suggestions as to their implementation. Due to a long period of minimum contact with outsiders, during which time the Chinese had concentrated on building up their capacity for "self-reliance," there was much interest expressed on how we do things in Canada. Since the area in North China had a similar climate to Canada, with a short growing season and relatively dry conditions, many of the Canadian livestock and forage systems could be related to their conditions.

As a result of contacts with the Heilongjiang Provincial Institute of Animal Husbandry, it was possible to obtain a grant from the Canadian International Development Agency (CIDA) for one of the Institute staff members to spend part of a year in the Department of Animal Science at Macdonald College. Mr. Jia Fu-der returned to China in November, 1983, having greatly increased his English language competency as well as observing dairy farm operations in many parts of Quebec. It has been proposed to continue a collaborative research program between Macdonald College and Heilongjiang, specifically related to developing forage evaluation and dairy cattle recording systems for the North China dairy farms.



The donkey cart is still the standard means of transportation for rural families in Inner Mongolia (China).



Although the large soybean fields have been prepared by tractor power, local school children provide weeding-power.

In another article in this issue of the Journal, Dr. Downey describes his experience in Heilongjiang Province in reference to their artificial insemination program.

Another aspect of Chinese interaction with Macdonald College is the six Chinese graduate students and scholars who were involved in four dif-

ferent programs on campus during 1983. Most of these programs were financed by the Chinese government, but with increased program support by CIDA and IDRC (International Development Research Centre) you can expect to hear of many more Macdonald College-China programs in the near future.

A Look at Animal Production

by Professor Bruce Downey
Department of Animal Science

There are approximately 300 million pigs, 110 million sheep and goats, 70 million cattle, as well as over 20 million horses, mules, and donkeys in the People's Republic of China. With over 70 per cent of its one billion plus human population deriving their livelihood from agriculture, the country's annual per capita consumption of meat is less than 10 kg (90 per cent of which is pork), poultry and fish 3 kg each and milk 2 litres. Such a shortage of milk dictates that only small children, the elderly, and the infirm are able to have it. China has indicated its intention to improve the dietary protein intake of its people and has designated agriculture as one of four major areas for "modernization by the year 2000 A.D." To this end, western animal production methods are now being actively pursued and, in this connection, I recently had the privilege of spending three weeks in Heilongjiang province on behalf of CIDA (the Canadian International Development Agency). The purpose of the visit focussed on the fledgling artificial insemination (A.I.) industry and on cattle reproduction in general.

With the city of Harbin (population two million) as its capital, Heilongjiang province (population 35 million) is situated on the northeastern Manchurian plain with its vast areas of largely undeveloped grasslands and would seem to be a perfect area for the expansion of animal agriculture. Temperature extremes are similar to those of the agricultural areas of Quebec, although annual rainfall and humidity are substantially lower. Harbin is also home to the "Domestic Animal Breeding and Technical Guidance Station," the provincial A.I. unit. In business since 1976, the "Station" is responsible for the selection, rearing, and maintenance of A.I. sires, the production and distribution of frozen semen and liquid nitrogen, A.I. technician training, progeny testing, research, and extension education to farmers on everything pertaining to reproduction in livestock species.



Group of F₂ beef calves at Daqing State Farm; these animals compared favourably with many found in Canada.



Milk being weighed prior to transport to processing plant; remuneration paid to each worker is based on milk produced by his/her group of cows.

The Dairy Industry

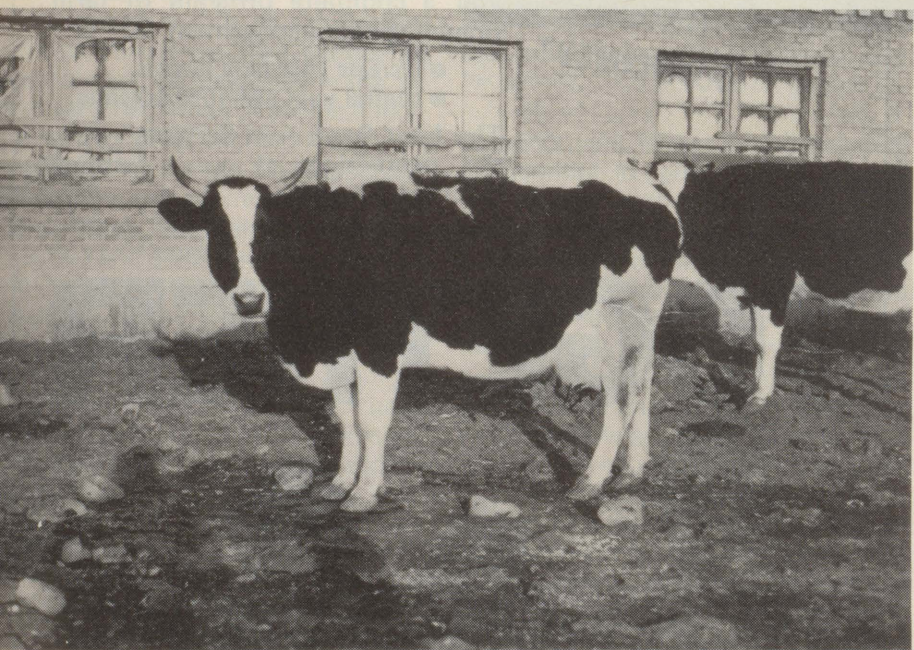
While not a traditional drink in China, milk is likely to find greater acceptance in the future. At present, 70 per cent of the milk produced in Heilongjiang is processed for milk powder while only 10 per cent is utilized fresh. Sweets, chocolate, butter (very little), and even ice cream in some areas make up the balance of milk products. In part, a lack of storage capability such as refrigeration along with inadequate transportation and distribution systems

are responsible for this. As quoted to us, the price of a litre of milk to the farmer is approximately 40 fen (28¢ Can.) and the cost to the public is 50 fen (35¢ Can.). In the face of an average annual income of \$600 (Can.), milk also turns out to be very expensive.

Although the majority of cattle in the People's Republic of China are "multi-purpose" in that they may be used for milk, meat, and/or work, there are 120,000 Black and White cattle in Heilongjiang and these are bred



From 10 days of age upward, calves at Harbin State Farm spend six hours per day outside in sub-zero temperatures (note fire and chimney to prevent water from freezing). Calf mortality rates are less than three per cent.



Typical Black and White dairy cow on State Farm near Harbin. Note that dehorning is not a common practice.

Specifically for milk production. Originating from European and Soviet union stock, these animals look very much like our Holsteins; however, there is only a small influence of Canadian bloodlines, the result of a 100-dose shipment (50 doses to Heilongjiang) of frozen semen in 1977. The average 305-day production of the 20,000 breeding animals is 4,000 kg of milk with 3.6 per cent fat and this represents a substantial improvement over the 3,000 kg average of the

1960s. Farms are paid for milk based on weight alone.

Beef Production

There are one million native yellow cattle in Heilongjiang including 400,000 cows and it is from this population that beef is derived. At present, 150,000 are inseminated artificially with semen from A.I. Station bulls which are mainly of European origin such as Simmental, Charolais, and

Limousin. Remarkable differences in growth rate have been noted between the yellow cattle and the F_1 cross-breeds with the latter animals reaching market weight a full six months earlier.

Current management practices include a breeding season of May to September and, therefore, a calving period of February to June. If calves don't reach market weight of 350 kg (18 months old for F_1 's) by the end of the grass season, they must be held over for a second winter, during which time they do well to maintain their body weight. In most instances, supplementation of the grass with grain has been considered uneconomic. It was apparent that any steps which will improve the growth potential and the ability to get cows bred early in the season would be of distinct economic advantage.

The A.I. Industry in Heilongjiang

The Harbin A.I. Station has made substantial progress in its eight years of operation. Greater than 90 per cent of dairy and 35 per cent of beef cows are bred with frozen semen from the Station. At present, there are a total of 70 bulls on site, including 30 Black and White and 20 Simmental with the balance made up of Charolais, Limousin, Hereford, Angus, and Shorthorn.

Despite a lack of modern equipment, a dedicated staff of 120 manage to produce one million doses of frozen semen per year. Approximately 80 per cent of the semen is frozen as pellets (as an alternative to straws) since storage and handling in the field is much less costly. Because pellets deteriorate with time, as many as four are used per breeding on some farms. As well, identification and inventory control of pellets for progeny testing purposes are difficult. An organized milk recording program for the purposes of proving the Station bulls appears to be the greatest need at present.

The reproductive performance of cows in the province would make some Canadian farmers envious. Conception rate to first service, time to first service, and calving interval were reported to us as 50-60 per cent, 70 days, and 380 days, respectively. Culling rates for reproductive reasons were consistently said to be only two

to three per cent. A portion of this success, however, may be attributed to the fact that many farms have full-time inseminators/heat checkers who inseminate each cow twice during her heat.

A Visit to a State Farm

The cattle population of the province is divided equally among State Farms, Collective Farms or communes, and individual households. One of the State Farms, the Daqing Livestock Marketing and Processing Company, is not typical perhaps but most interesting. The animal population on the farm included, we were told, 2,895 dairy cattle, 8,616 sheep, 1,469 horses, 2,319 beef cattle, 307 deer, and 3,822 pigs. Like most farms, additional operations include such things as factories for milk processing, beverages, medicines, leather goods, machinery repair, wood processing, bricks, and construction and installation. A staff of 9,750 is employed by the company.

On this farm, 1,300 cows are milked by hand three times daily and produce an average of 5,400 kg of milk. Several teams of workers are responsible for the care of the animals with each team in charge of about 100 milk cows. Each team has a deputy leader, a veterinarian, three to four agrologist/technicians, and about 50 other workers. Approximately 18 of these people actually milk the cows.

The cattle were well fed on this farm with rations including corn silage, dry hay (grass), sugar beets (pulp), concentrate (corn and soybean meal), in addition to salt and minerals. One group of F_2 generation beef calves which had received supplemental feeding (see picture) were expected to reach market weight by 12 months of age.

Looking to the Future

Projections for the development of the cattle industry in Heilongjiang include an increase in dairy animal numbers to one million and beef cows to 700,000 by 2000 A.D. Virtually all of these will be bred by A.I. The Chinese hope that this can be achieved through: 1) natural population increase, 2) the crossbreeding of dairy bulls and yellow cattle (milk is more valuable than meat), and 3) the pur-

chase of dairy animals or embryos. This means that the A.I. Station will need 100 dairy bulls alone by the year 2000. To achieve these numbers, culling must be kept to a minimum which makes selection for increased milk production difficult. Perhaps the

greatest contribution that Canada can make is to pass on our methods of selection and progeny testing, with some new genes for milk production thrown in, so that quality can be raised and the pressure for numbers will not be so acute.

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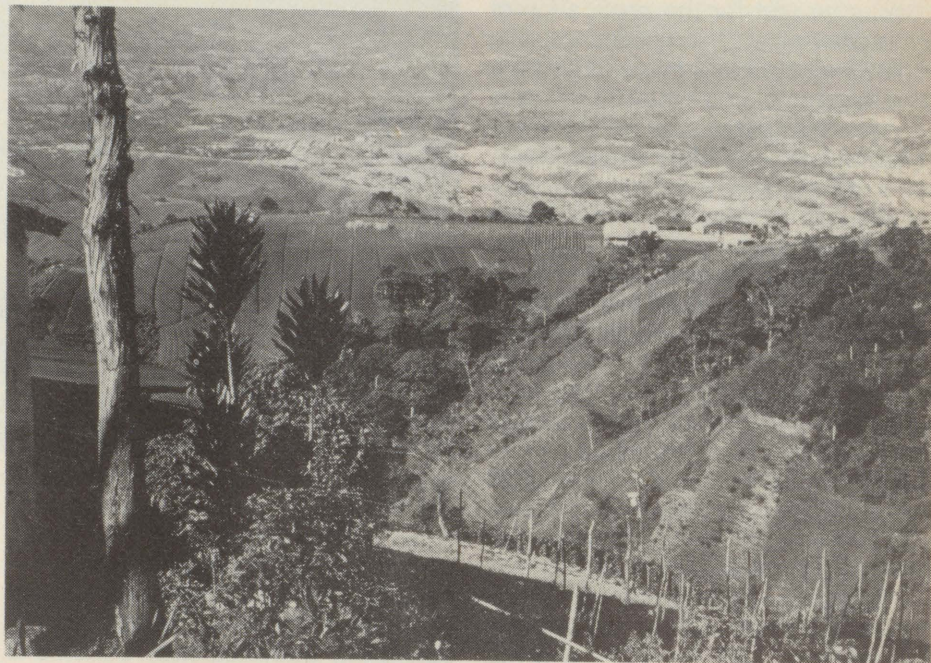
Is consulting beneficial?

by Professor G. Millette
Soil and Land Resources
Department of Renewable Resources

In the 20 years of my career as Associate Professor spent in the former Department of Soil Science and in the present Department of Renewable Resources, I have been a professional consultant for 19 years — in Quebec, Canada, and at least once in 16 countries of the world. Never to the best of my knowledge has this work interfered with my academic and administrative responsibilities and functions although I have taken, on two separate occasions, leaves of absence without pay, each time for one academic semester. I would now like to analyse this external consulting work to see how it has been beneficial, to whom, and to what.

The normal duties of a university professor include teaching, conducting research, and participation in the administrative activities of the institution. Attached to the academic freedom inherent with the job lies the responsibility for each professor to reach a level of excellence that makes his courses attractive and enhances his reputation with the natural fallouts upon the reputation of the institution. This, in time, draws the attention of an increasing number of prospective students at all levels. In other words what is good for the reputation of the professor-consultant is good for the reputation of his institution.

Perhaps the most rewarding aspects of the fallouts of consulting lie in the improvements of teaching methods and means of communication with others. For instance, I was able to prepare a new assessment form for students' oral presentation of subjects in class as a result of experience gained in my association with the professionals who organized intense training courses for the future trainers of the personnel of the Philippines. These professional agrologists deal with the financing of agricultural operations. The net results for my students were: improved ability to structure and to control the quality, the relative importance of subjects, and the length of their presentation. In addition, they were more competent at judging their peers'



Agriculture on the steep slopes with the city of Bucaramanga, Colombia, on dissected plateau in background.

presentations. Direct contributions of consultation to course contents is not a negligible matter. The number of slides, coloured pictures, diagrammatic illustrations as well as super 8 mm personal movies which I have introduced into my basic course taught in Geology and Geomorphology have personalized my communication with the students and enlivened a subject which otherwise would have been a simple dull enumeration of facts and phenomena. The introduction of unpublished scientific information with direct applications in soil surveys, soil map interpretation, land use, and territorial planning and development, gathered in consulting work, regularly updated my teaching of those subjects. Systems and methods developed by various schools of thought throughout the world conducting soil surveys or grouping soils for interpretation of soil information for multiple land use broadened the scope and teaching of my course in Soil Survey. In 1971 consulting work also instigated the creation of a course named Soil Geography. This course needed to be split into two courses — Soil Rating in 1976 and Land Planning in 1977 — following students' suggestions and manifested interest in learning about practical applications of the

knowledge of soils. I have participated in five different countries as the expert consultant in agriculture with multidisciplinary teams of engineers, economists, sociologists, geologists, specialists in transportation systems and in recreology. We worked on a computerized program to plan the transport network of each country. In other cases I was consulted on such aspects as the damage done to soils and to the environment by the installation of pipelines, power lines, airports, highways, industrial parks, dumping sites, playgrounds, recreational parks, deforestation, flooding and the maintenance or establishment of golf courses. This cross-disciplinary information was instrumental in my organizing and presenting a course in Rating Soils for Multiple Land Uses. My ideas for structuring a course on the Principles of Land Planning and Development originated from working out a management plan with a multidisciplinary team for the Plain of Kairouan in Tunisia in 1972. Three years later, working out an agricultural scheme to solve some problems of the Liptako Gourma region of the Sahel, I was able to elaborate a philosophical approach to accomplish Land Planning and Development. The first opportunity to test the theory came in 1978

with a plan for the development of agriculture in the Chixoy River Valley of Guatemala. The ultimate and most conclusive test for the application of some principles of land planning came in 1983 in Colombia in working out a development plan for the Upper Lebrija watershed. Because of the wide range of climates in the Andes Mountains of Columbia, the ecological conditions suit 40 different crops. These were arranged into 35 units of management which had been established from data on climate, orientation of slopes, relief and soil properties. Final maps of the area, therefore, indicated the units of management with the lists of actual and potential crops that could be produced and planned for the overall development, provided the socio-economic and administrative infrastructure might permit it.

Perhaps the greatest contribution of consulting to my career occurred in the selection and the elaboration of research projects. Repeated contacts with farmers, mostly in Quebec but in some countries as well, revealed the existence of such problems as: some ill effects of improvements in drainage; internal deterioration of soils due to cultivation and manipulation of microclimate. These problems had not come to the attention of research funding agencies and a handicap was the difficulty of finding financial support. Most of my research was implemented through paying graduate students with money earned in consultation or by accepting graduate students who could support themselves financially, either personally or through a system of scholarship.

Consulting, however, causes a greater handicap to scientific publications than to research. Often, for a variety of reasons, research which did not attract funding did not interest scientific reviews for publishing results. Furthermore, each consultation requires the preparation of a report which may vary in size from a few pages up to a 400-page book. A report prepared from a consultation is a major undertaking, especially because of the financial implications which result from it. Be it for a court case or for a development project in a country, a report is criticized and scrutinized by the employer, by the immediate recipient, and by others who might be affected by facts, observa-



Getting the sugarcane crop out of steeply sloping fields in the Andes of Colombia.

tions, or recommendations. Often, since only material in a refereed journal is considered as being valuable for some promotions in the university, consulting activities may become a handicap for academic advancement.

The greatest beneficiaries of consulting in a university could be the students. Apart from improving the quality of courses and sometimes methods of course presentation, consulting activities bring new opportunities for student employment (temporary or permanent), draw attention from all different firms and enterprises upon the institution, extend the reputation of the university to people who could not have been reached otherwise. Many new students choose an institution because it became known to them through the consulting activities of one of the staff members.

It is difficult to assess how consulting may affect the administrative efficiency of a university staff member. As consultations require time away from the university, continuity in administrative functions may not always be fulfilled. However, association with professionals, technologists and administrators in many diversified fields abroad may well become an asset when some creativity or innovation become necessary in administration.

Administration in developing countries is highly categorized and parcelled into numerous fields with very limited amplitude of responsibility for subordinates.

This robot-type of administration enhances the authority of the "director" at the expense of efficiency and

understanding of the administered persons, besides eliminating communication between "directors" and "directed" beings. This is an evil which a consultant professor tries to eliminate from the administrative responsibilities that he shares with others following his return to the university.

With all its pros and cons, consulting remains an interesting activity which should be encouraged by universities. It presents many attractive facets. The recognition that staff members receive as expert consultants is extremely beneficial, and consultation acts as an open door to exchange ideas, to bring in students, and to export knowledge through job opportunities. In other words, it acts as a wonderful medium of public relation for a university.

The major gain, however, for the institution lies in the overall betterment of a staff member who has the status of expert consultant abroad. Consulting activities are a continuous challenge to one's imagination, and to one's resourcefulness and creativity. Yet it develops or improves the virtues of tolerance, understanding, patience, perseverance, self confidence, and allows enough adaptability to overcome the stresses of the competitive life of a university professor.

Above all, it has been emphasized to me that one sees others through the lenses of his own virtues or weaknesses. However, the ultimate and definitely greatest reward of consulting is that one's vanity vanishes through learning to learn from the so-called "unlearned."

BETTER FROM SENEGAL

It is generally said that engineers love the challenge of a new project. So, here we are (my wife Alice and I) in Thies, Senegal, participating in the creation of the National Institute of Rural Development, the first upper level institution in the country to offer training in the agricultural sciences.

Senegal occupies the westernmost tip of Africa, where the continent bulges outward into the Atlantic Ocean. French is the language of administration and education, but the Wolof language is spoken by some three quarters of the Senegalese people, and other minority ethnic groups also have their own languages.

Of the tropical African countries, Senegal is the most urbanized, but it is still considered an agricultural country with approximately 60 per cent of its population (1980 population equals five million) living in rural areas. The continued drought has had long-term cumulative consequences in terms of water supplies, permanent loss of natural vegetation for agriculture and livestock grazing.

Recent efforts have concentrated on developing irrigation, particularly



along the natural river systems, and much of our concerns here at the Institute relate to the development of water resources. Fortunately, there seems to be vast quantities of underground water, which are partly fossil and partly fed by the waters of the Senegal River in the North, and drillings from 100 to 350 metres deep yield some 50 to 100 cubic metres per hour. However, the high cost of drillings and the limited number of drilling rigs seem to create a situation where only household water supplies are being improved for the moment.

As for this Institute, the idea of its creation was put forth in 1969 by a UNESCO task force, and World Bank funds were obtained to finance the project. It was inaugurated in January 1983. Until then training of agriculturists was carried out in foreign countries, and it had been evident that this procedure was not optimal since it produced agriculturists with little

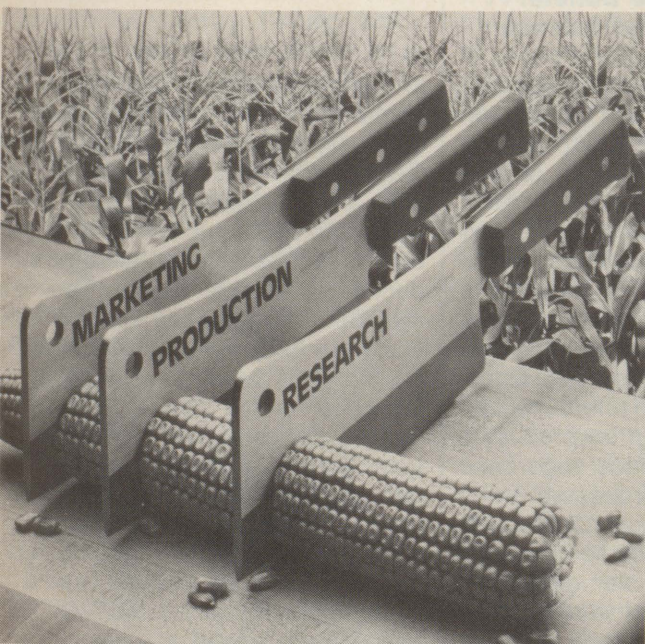
knowledge of the local problems and their possible solutions. It is hoped that the activities of this Institute will fill the gap. In three years, the first graduates will emerge, and it is expected that, after some graduate training, some will replace European and Canadian professors who now make up the majority of the permanent staff here on campus. My responsibility here is to organize the Agricultural Engineering Department. On hand are also professors of Soil Science, and others will follow to staff Animal Science, Plant Science, and Agricultural Economics. At the moment, we use outside lecturers in most fields until the permanent staffing is complete.

The Institute is located on a land area of 50 hectares a few kilometres outside Thies, and it is planned to establish experimental and demonstration plots there in years to come. A well will have to be drilled for irrigation purposes before any of this can take place.

To all the readers of the Macdonald Journal, best personal regards.

Professor Pierre J. Jutras
Department of Agricultural
Engineering (on leave)

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Research Projects in Jamaica on . . .

by **Professor Bruce Coulman**
Department of Plant Science

In January of 1983 I received a grant under the McGill International/Royal Bank/Caribbean program to carry out a research project in Jamaica. This project was to assess the potential of a hybrid forage grass in the Caribbean region. The grass is a hybrid between pearl millet (*Pennisetum americanum*) and napiergrass (*Pennisetum purpureum*). Pearl millet is a high quality annual forage grass grown in the United States while napiergrass is a very high yielding perennial grown in many tropical regions. The hybrids, which were produced in Tifton, Georgia, combine the high yield of napiergrass with the good quality of pearl millet. The hybrid is sterile, so fresh seed or asexual cuttings are required for new plantings.

Small quantities of seed of several hybrid lines were sent to Mr. Cedric Gordon in Jamaica in January, 1983. Cedric is a former student at Macdonald College, having received his B.Sc., then his M.Sc. in Animal Science. He is employed with the Jamaican Ministry of Agriculture's Bodles Research Station in Old Harbour, just west of Kingston. Initial plantings were made at the Bodles Station, and cuttings were later sent to the research station at Grove Place, near Mandeville.

In late May of 1983 I visited Jamaica to look at these initial plantings and also brought more seed for further plantings. The plots established in January were growing very vigorously, and quality analysis had shown relatively high protein and low fibre levels. I discussed with Cedric the plans for the larger plantings to be established in the summer of 1983.

While in Jamaica I stayed with Cedric and his family at the Bodles Station. This was an excellent arrangement as it put me very close to the fields in which the work was being carried out. It also gave me opportunity to sample the many fruits and vegetables of Jamaica, several of which were growing in Cedric's back garden. I also had the opportunity to visit two other research establishments as well as other interesting sites. It was my first

. . . hybrid forage grass



This photo clearly shows the tall vigorous growth of the hybrids. Cedric Gordon is on the left.

visit to a tropical country, and I found it a most educational experience. I was grateful for the hospitality extended by Cedric and his wife Joan.

The new plantings were done in September, 1983. Despite a prolong-

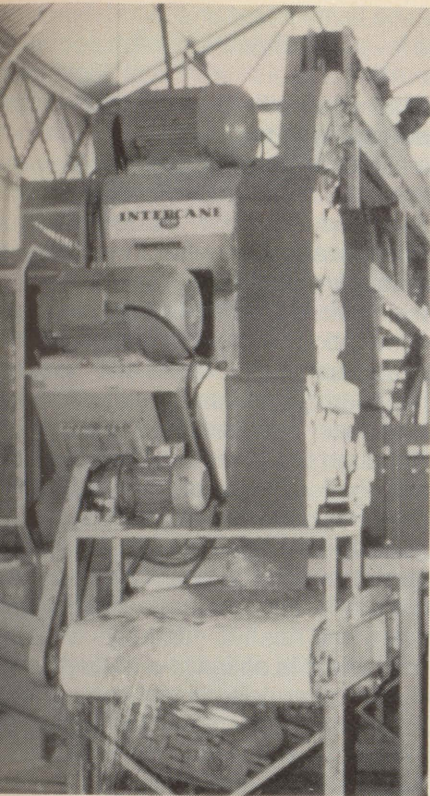
ed drought the hybrids apparently grew very well and were harvested in January of this year. Further harvests will be done, and I hope to get back to Jamaica this year for further assessment of these fields.

. . . sugarcane feed project

by **Professor Eugene Donefer**
Department of Animal Science

In late 1983 McGill University was contracted by the Industrial Cooperation Division of CIDA (Canadian International Development Agency) to participate in a two-year Jamaican study. The purpose of the project, which has a \$120,000 budget, is to determine the commercial feasibility in Jamaica of producing animal feed from by-products of a sugarcane processing system. The particular system is of Canadian development, with Intercane Systems of Windsor, Ontario, producing equipment which derinds sugarcane stalks and greatly increases the efficiency with which sugar can be produced for human consumption. A by-product of the Canadian-developed "separation" system is the inner fibres (pith) of the sugarcane stalk after the sugars have been extracted, and it is

this material which the Macdonald researchers will use as the basis of the commercial animal feed. Staff from the Department of Animal Science have been involved over a 17-year period with Caribbean studies (St. Kitts, Barbados, Trinidad) involving sugarcane-derived livestock feeds. The staff members participating in the present study are E. Donefer, E. Block, and H. Garino. This team is working in collaboration with a Jamaican group led by Dr. I. Sangster, Director of the Factory Technology Division of the Sugar Industry Research Institution (SIRI). At their pilot plant in Bernard Lodge, a sugar factory west of Kingston, a prototype of the Canadian separation system has been installed (with CIDA assistance), and it is this operation which will supply the sugarcane pith



developed in Canada and being used in Jamaica, this machine derinds sugarcane stalks and greatly increases the efficiency with which sugar can be produced for human consumption.

the animal feed project. Initial feeding trials will be conducted at the nearby Bodles Agricultural Research Station of the Jamaican Ministry of Agriculture, with the participation of Fredric Gordon, a recent B.Sc. and M.Sc. graduate from Macdonald (Animal Science-Nutrition), who is Nutritional Scientist with the Ministry. To help in carrying out the project, Allen Brown, a recent Jamaican graduate from the Faculty of Agriculture of the University of the West Indies in Trinidad has been asked to act as liaison between the Macdonald and Jamaican groups. The project illustrates a cooperative venture where Macdonald Staff are working in close conjunction with local participants in Jamaica to help develop local agriculture.



DIET AND HEART DISEASE

During the course of a school year seminar speakers at Macdonald come from various areas in Canada and the United States and from abroad. Last fall a seminar sponsored by the Dairy Bureau of Canada with assistance from the Department of Agricultural Chemistry and Physics was of particular interest. Dr. S.H. Blondein, Professor of Medicine at the Hebrew University Hadassah Medical School in Jerusalem spoke on the topic "Polyunsaturation of the Diet and the Development of Ischemic Heart Disease."

In his opening remarks Dr. Blondein said that he was going to poke holes in the concept that eating a low-fat diet with a high ratio of polyunsaturated to saturated (P/S) fatty acids protects against ischemic heart disease (IHD) by lowering serum lipids. He said that experience in Israel is casting doubt on this lipid-heart hypothesis.

Dr. Blondein pointed out the many difficulties in getting accurate information on a person's diet and how one cannot overcome this problem in their research. "You look at national statistics and see that so many people in a year have done away with so many pounds of bread, but did they eat the bread or, because it was cheap, was some of it fed to animals, as is done in Israel. You have to modify the statistics. When you ask people what they ate yesterday and the day before, some may not remember accurately. If you go into the kitchen to look over the housewife's shoulder, she is going to get very self-conscious. She knows that polyunsaturated fat is supposed to be good so she may use more of that and less butter than usual."

The German expression "*Der mensch ist was er isst*" — you are what you eat — was recalled by Dr. Blondein, as was the lesson learned in medical school. "We were told that when you fed pigs refuse from the table you got a relatively soft fat but when they were fed grain the fat became much harder. The fat changes with the food eaten. The fat that one eats is reflected in one's subcutaneous fat. Taking a sample of this fat is much easier than taking a blood sample. It comes out very nicely and, therefore, we could analyse it and know exactly what had been eaten."

The conclusions concerning

Israeli's dietary habits drawn from the research were:

1. Israelis have been eating a diet in good accord with the recommendations for a diet to prevent ischemic heart disease as regards protein, fat, carbohydrate and sugar intake, and especially P/S ratio. In Israel the P/S ratio is the highest that has ever been reported. Nevertheless, the IHD mortality for Israeli men is 80 per cent that in the United States and for Israeli women 120 per cent that in the U.S. (The U.S. has one of the highest IHD mortalities in the world.)

2. The Israeli ethnic group with the highest P/S ratio (originating from Morocco) has had the greatest increase in IHD mortality over a 25-year period and their mortality is approaching that of the group with the highest mortality (originating from Europe/America). On the other hand, the group with one of the lowest P/S ratio (from the Yemen) has one of the lowest IHD mortality and it has not been increasing.

3. Beduin Arabs in Israel had been free of ischemic heart disease until only 20 years ago. Beduin who have given up their typical seminomadic lifestyle have developed higher serum lipids despite higher P/S ratios. In fact, they show a statistically significant positive correlation between P/S ratio and serum cholesterol and triglycerides, contrary to the expected effect.

4. In a comparative study of young Israelis and young Americans visiting Israel the P/S ratio of the former was significantly higher but despite this their serum cholesterol and triglycerides were also higher.

Dr. Blondein concluded a most interesting informative, and provocative seminar by pointing out that in the Israeli experience a highly polyunsaturated, relatively low-fat diet does not appear to have been protective against ischemic heart disease. Other factors, such as stress, for example, may have been swamping any possible effect of such a diet in inhibiting increases in serum lipids and the development of IHD. The latter two may not necessarily be causally related, but may both result from stress or other as yet unidentified factors.

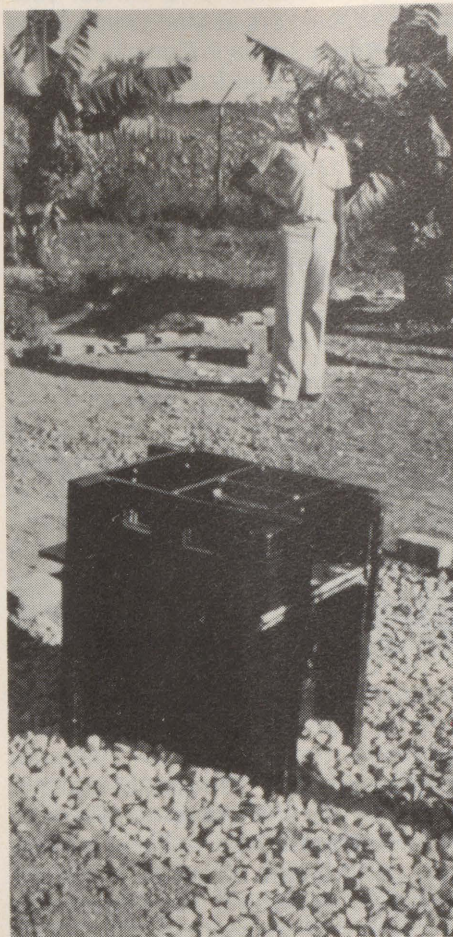
SOLAR FOOD DRYING

In 1981-82 Professor Robert Kok of the Department of Agricultural Engineering and an M.Sc. student Nicholas J. Kwendakwema, on study leave from the University of Zambia, designed, built, and tested a small scale solar food drier for family use in Zambia. Financial support was received from CIDA (Canadian International Development Agency) and the experiments were carried out at the University of Zambia. The following extracts are from a paper of theirs that was presented recently.

Food can be dried by a wide variety of techniques which may range from quite primitive to technically sophisticated. Practically all methods have in common the removal of water by a hot air stream flowing past the food. In many instances the air stream is used both as a heat transfer fluid to carry heat to the food and as a mass transfer medium to remove the water in the vapour form. Heat may, however, also be transferred to the food by conduction or radiation or by a combination of heat transfer mechanisms. In general, heat must be supplied and water removed.

Drying methods may be classified according to a number of criteria such as the source of the thermal energy or the type of equipment in which the drying takes place. The term "solar drying" implies nothing more than that the energy source for water evaporation is solar radiation; solar drying can be carried out in any type of drying equipment. Solar food drying methods can be divided into two major groups: direct and indirect. In the former, the solar radiation is allowed to impinge directly on the food whereas in the latter the solar energy is collected and transported to the food, frequently by means of an air current. The air current may be the result of either natural or forced convection.

Open-air sun drying of food is still carried out extensively throughout the world. In this, the energy input comes from direct solar radiation as well as from naturally circulating warm air. The air currents also transport the water vapour away from the drying area; the "equipment" consists of a field, floor, screen, or net upon which the food is placed. There are problems

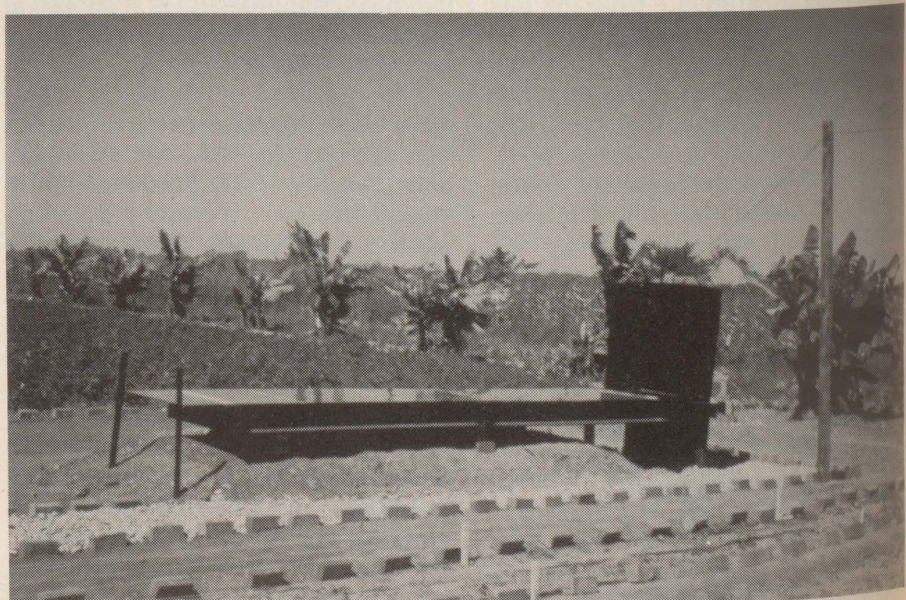


Nicholas Kwendakwema watches the progress of the construction of the solar drier in his native Zambia; below, the drier is ready for testing. Cabbage, okra, and beef were dried; as well some experimental work was done with pumpkin leaf and roselle.

associated with this technique such as damage and contamination from rain, insects, birds, and rodents. To lessen the impact of some of these factors, the food may be placed under a transparent cover. Food may be dried in such closed equipment through which air is allowed to flow by natural convection. A parabolic reflector has been used to increase the radiation intensity in these to dry grapes, mangoes, peaches, and mushrooms. Although the contamination problems are reduced in such covered, direct driers, substantial food damage is still done by the radiation. The quality of food produced in direct driers is also generally low because the temperature and relative humidity cannot be controlled. In an indirect solar drier the radiant energy is usually converted by means of a solar collector to sensible heat of an air stream. Food deterioration due to radiation is thereby eliminated. The drying takes place within the equipment so that contamination can also be prevented. The extent to which the temperature and humidity of the air stream can be controlled is a function of the complexity of the equipment. This then also largely determines the resultant quality of the food; the better the control over the drying equipment, the higher the food quality.

Objectives

The objectives of this project were



to design, build, and test a small scale solar food drier in Zambia. The level of technology and materials of construction were to be limited to those generally available in the denser populated areas, i.e., near the cities and along the major roads. In these target areas plywood, sheet metal, glass sheet, bricks, paint, and minor hardware such as screws, nails, and electrical outlets and switches can easily be bought. Electricity is also installed. Electronic or pneumatic monitoring and control equipment cannot, however, be bought or serviced locally and hence was judged to be non applicable technology. The drier was to be designed so as to be easy to copy and operate by local labour, yet produce food of considerably higher quality than is currently sold in most of Zambia. One of the major design objectives was to allow for flexibility in drier operation so that the temperature to which the food was to be exposed, and especially the spatial and temporal variabilities therein, could be controlled to at least a fair degree. A second design objective was to use the available energy efficiently within the technological constraints imposed.

To assure a minimal food quality, an indirect, forced convection drier was designed. The air currents were induced by two small electrical fans. To dampen the fluctuations in the solar collector power output, a large thermal mass was incorporated in the drier. Thus, the temperature, velocity, and, indirectly, the relative humidity of the air in contact with the food could be controlled to a certain extent. No attempt was made to implement direct relative humidity control. In the design, a modular approach was followed; the drier essentially consisted of a solar collector, a tray drying cabinet, and a thermal storage interconnected by a fan housing and a control unit. The collector, storage, and tray cabinet were fairly typical; it is their use in combination in the manner presented that is novel. Nine simple slide valves were installed within the fan housing and the control unit. These allowed the air flow paths through the drier to be defined. The drier could thus be operated in a number of modes and submodes. All modules were designed so as to require only minimal tools and skills to construct. The modules, which were made of plywood 2 cm thick, were

basically rectangular boxes whose sides were fastened together with screws. To assemble the drier, the modules were stacked against and on top of each other and attached, also with screws. Air flowed between the modules via matching holes cut in adjoining sides. Final module dimensions could vary considerably without adversely affecting drier assembly or operation to a great extent. The drier was designed to be loaded with 5 kg of wet material per batch.

Drier Construction

The drier was constructed and tested on the University of Zambia campus near Lusaka. The construction phase took three weeks in June 1982.

The external dimensions of the heat storage unit were 220 by 50 by 40 cm. A 5 cm thick layer of styrofoam insulation was fastened on the inside to each of the vertical walls; a 15 cm thick layer of styrofoam was placed on the bottom and covered with a false bottom to support the weight of the thermal storage material. In the resulting internal cavity were placed 180 kg of fired clay bricks. The bricks were stacked around a 10 cm diameter, 1.95 m. long aluminum air duct. The duct ended 10 cm above the false bottom. Sufficient space was left between the bricks so that air could easily flow through the stack. During the heat storage mode, hot air was forced into the lower part of the storage unit through the duct and cooled air flowed out, back into the control unit through an opening in the top of the heat storage; during the heat recovery mode the direction of flow was reversed. The heat storage unit was placed in a pit on a 20 cm thick bed of crushed stone. The rest of the pit was then filled with this material as well so that the heat storage was surrounded on all sides by a substantial layer of easily drained material.

The solar collector was 5 m long, 1 m wide, and 20 cm thick. The air inlet and outlet were located at the same end of the collector. The external dimensions of the control unit were 50 by 40 by 20 cm, while the drier cabinet external dimensions were 110 by 50 by 40 cm. Ten trays, each measuring 40 by 36 by 3 cm, could be placed on supports inside the drier. And, finally, the fan housing external dimensions were 134 by 41 by 31 cm.

Two sets of experiments were conducted: a) equipment characterization experiments to study the temperature histories that could be attained in the drier cabinet during operation in the various modes and submodes without food in the drier and b) food drying experiments to determine the drying rates of several foods and to evaluate the effects of tray position and operating submode on the drying rates. Due to financial and time restraints, the experiments were carried out during the Zambian "winter" (July, 1982). During this season the maximum daily temperature usually does not exceed 30°C and the minimum daily temperature may fall slightly below 0°C. Although Zambian weather is remarkably consistent on a day-to-day basis, a certain variability was inevitable. This perforce influenced the results.

Cabbage, okra, and beef were dried. Cabbage and beef are staple foods in Zambia. Beef is by far the major animal protein source consumed there and is frequently sun dried, especially in rural areas. Before being dried, cabbage was first washed with tap water and then cut into pieces approximately 2 by 2 cm. Okra was just cut into slices 5 mm thick. It was not washed since wetting makes it difficult to handle. The beef was cut into 1 cm cubes. None of the foods was blanched before drying. Products were prepared in 5 kg lots and loaded at 500 gm per tray in the drier cabinet at the start of an experiment. The tray contents were occasionally re-spread in the course of the experiments. Each experiment lasted two days. The food was loaded into the drier at 8:00 a.m. of the first day and the fans were started. They were then shut off at 5:00 p.m. that afternoon and the food simply left in the drier overnight. The second day the fans were again started and shut off at the same times.

Conclusions

Some conclusions reached were: Energy could probably be conserved better if the fan housing and control unit as well as the drier cabinet were insulated; an integrated rather than a modular construction approach could be used for a commercial version of the equipment; to improve heat storage performance, crushed stone

rather than bricks should be used as storage medium since stone had better heat transfer characteristics.

From the limited number of food drying experiments performed, it was evident that a wide variety of foods could be dried in the equipment in two or three operating days. Some ex-

perimental work was also done with pumpkin leaf and roselle; those two were successfully dried in two days. The food quality as such was not determined by experimental means but food texture, colour, and flavour were subjectively judged to be excellent compared to locally dried products. For an

initial, experimental version, the drier built, despite its limitations, performed adequately and served to prove that in principle a solar collector, a heat storage, and a conventional tray drying cabinet can be combined into a very flexible unit of appropriate technological level.

In Pursuit of Education

by Eric Thompson, B.Sc.
(Agr.)'71, M.Sc.'75
Forest Technology
John Abbott College

In the fall of 1980 McCarthy Lincoln arrived from Liberia to continue his education in Canada. This was but one of many major accomplishments by McCarthy as he pursued a life long goal of a good education. Because of his dedication to studying and determination to keep improving, his collegial studies were sponsored by West African Explosives and Chemicals Ltd. (EXCHEM) a subsidiary of CIL Ltd.

McCarthy grew up in the small village of Dolostown in Liberia. His family could offer him very little support for his education so he took odd jobs such as gardening and housekeeping on the weekends to pay for his school expenses. While education in Liberia is free, a school uniform is mandatory if you wish to go to school, and these uniforms are, unfortunately, very expensive.

In 1977 McCarthy began working as a house boy for André Boily, a Canadian and the EXCHEM's General Manager in Charlesville. During this time, McCarthy continued to study at high school while working for the Boily's on weekends and during the dry season, a school holiday, from December to February. When he wasn't at school or working, McCarthy used his free time to read books he had borrowed from the Boily family.

Before returning to Canada, André Boily, then President of EXCHEM told McCarthy he would have EXCHEM sponsor his college education if he succeeded in finishing high school. While EXCHEM's major business in Liberia up to this time had been the manufacturing of explosives for use in the local iron mines, there was a great potential for the production of fertilizer for the many rubber and palm planta-

tions. This led to McCarthy studying in the Forest Technology Program at John Abbott College.

Even with this new support for his education, McCarthy was faced with setbacks. It took him over six months to obtain his passport from the newly formed military government. This meant arriving one month after classes started. Over the first few months McCarthy adjusted very fast to this new situation, and he managed to complete most of the forestry program over the next four semesters. In addition to all the forestry courses, McCarthy also took a broad range of electives

in the business administration program.

To broaden his background in soils, McCarthy became a special visiting student at Macdonald College and took an introductory soils course with Dr. Guy Mehuys of the Renewable Resources Department.

McCarthy will be returning to Liberia in the summer. While many things have changed in his country since he left four years ago, McCarthy will be well prepared to meet those new changes and the challenge of a job with EXCHEM. With McCarthy Lincoln, challenge is a way of life.



It's a long way from the village of Dolostown, Liberia, above, to a field adjacent to the Arboretum at Macdonald, below, but it is all part of McCarthy Lincoln's desire for an education. He is seen below with Professor Guy Mehuys of Macdonald and Eric Thompson of John Abbott College.



Prof Profile

no issue on international agriculture would be complete without a study of and comments from one of the Macdonald staff who has more often than many gone the extra mile at Macdonald, for the University, and for advancement of agriculture at the provincial, national, and international level. Dr. Howard A. Stepler, Chairman of the Department of Plant Science is due to retire soon but he was still much too involved with a very active life to discuss that particular aspect with the Dean of the Faculty of Agriculture, Dr. E. Lloyd.

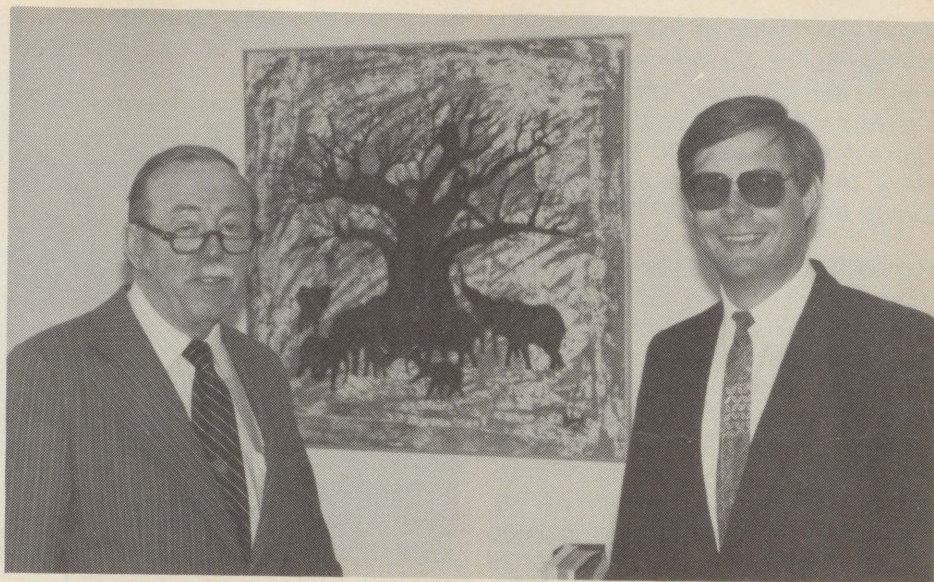
LEW LLOYD as a westerner from Warden, Manitoba, you came East back in '46 and never went back. I was an easterner who went West to get that other great culture into my system, but I came back. Had you ever thought of going back West?

HOWARD STEPLER I did — for 10 months. When I finished my Masters in 1948 I went to the federal research station at Brandon, Manitoba, as a forage officer, but I only lasted there for 10 months as Professor Raymond asked me to come back here on staff. I liked the associations that I made during my two years as a graduate student I accepted.

LEW LLOYD Why did you come to Macdonald rather than to a western university to do your graduate work?

HOWARD STEPLER When I came back from overseas I went to the University of Manitoba to look for opportunities to do graduate work. At the same time there were letters from Macdonald, specifically from Professor Summerby, looking for a person to come here as an assistant. I had heard of Macdonald through mutual friends, Lois and Wally Sackston who were in Manitoba. I applied for the position with Summerby and wound up with an assistantship on the pasture research programs.

LEW LLOYD Both of us had our education interrupted by World War II. Now that it did a lot of rather special



Dr. Howard Stepler welcomes a former student, Hubert G. Zandstra, B. Sc. (Agr.) '64, M.Sc. '66. Dr. Zandstra, who is Director of the Agriculture, Food and Nutrition Science Division of the International Development Research Centre, was at Macdonald recently to give a seminar.

things to me. How do you think your overall approach to education was influenced by service in the war?

HOWARD STEPLER In retrospect one thing that influenced me in what I have subsequently done was an old exercise that we went through in officers' training called an appreciation of the situation. You were faced with a situation where you had to make a decision on what you were going to do and get on with it. You may not always be right; you have to be flexible and make some adjustments as you go along. In my auxiliary troop there were people from all walks of life, some you suspected had managed to escape the law by joining the army and others were there with very definite motivations and dedication to specific problems. We got a feeling for dealing with people and for living and working with people who had different aspirations and backgrounds.

LEW LLOYD You've spent 38 years at Macdonald, 35 of them on staff. You went through the late 40s, the 50s, and 60s. Do you have any special feeling for those years?

HOWARD STEPLER When I came on staff it was a very different kind of life to what it is now. It was much more leisurely, particularly in the summer time. There was time to think about research, but I recall most the summer trips that Professor Raymond and I used to make out to the Townships, or

around Howick and Ormstown, or the Shawville or Lachute areas. These were very leisurely and enjoyable trips which gave us an opportunity to discuss problems with the farmers in the different regions. There was also time to visit with Professor Raymond in the car and realize that his sense of direction was absolutely terrible. He could get himself lost so fast it was unbelievable! There just doesn't seem to be time now; there seems to be more paper work.

LEW LLOYD Your original field of interest in research was forage crops and one of our first professional contacts was back on the old Macdonald Pasture Committee.

HOWARD STEPLER The pasture committee was unique, Lew, because it was the first interdepartmental interdisciplinary group that really was effective. It brought together people such as yourself from Animal Science Nutrition, Walter DeLong from Chemistry Soils, people from Agronomy, and a couple occasionally from Botany. In later years we brought in Agricultural Economics and Agricultural Engineering. The work that the pasture committee did was exceptionally good and of very high calibre.

LEW LLOYD Wouldn't you say it was a little bit avant-garde, too? I recall trying to integrate the animal nutrition aspects of ruminants with the actual growing of the forage material.

Remember some of the experiments we had out on the farm with Michael Perera and his sheep and those moving plots that they grazed on. It was an interesting approach to forage work. Have there been real advances in forage crops since the 1950s?

HOWARD STEPPLER There has been an advance in the sense of a clearer definition of objectives and the realization that forages have to fit into an animal production system. My greatest concern with forage work and with agricultural research in general is that it really is not addressing the problem of the production system *per se*. Research still tends to treat isolated pieces. The most recent projection of agriculture in Canada to the year 2000, which envisages an increase in animal and cereal production, tends to treat these things as independent units, particularly forage crops, and not as part of the system. That's the real tragedy. The breeding and disease work is very good, but the integration of those into the production system — getting the animals in, the economics and the soils in, isn't really being done.

LEW LLOYD *It has been said that it would probably be easier to list the committees at Macdonald, McGill, and elsewhere that you haven't served on over these 35 years. Let's look at the University first. Have the activities of any of these committees and your participation on them provided any sense of accomplishment.*

HOWARD STEPPLER I suppose the one that gives me the greatest sense of accomplishment is the committee which was concerned with the relocation, structure, and rehabilitation for the Faculty of Agriculture: the Macdonald Stewart Building, the renovations in the Barton and in the Raymond Building (formerly Agriculture). Being Chairman of the Committee I was in a unique position of seeing and appreciating the problems that the staff had in wondering about the unknown — exactly what were they going to get in terms of new facilities, how satisfactory would they be, how much space would they have, would it work — and, on the other side of the fence, knowing the limitations that the people from physical plant and the architect had in terms of costs and finances, timing, building codes, and so on. I tried to



Our files from the 50s gives us this interesting photo of Dr. Stepler, far right, with friends and colleagues, left to right, Professors H.R. Klinck, L.C. Raymond, André Auger, Quebec Department of Agriculture field husbandry, (unknown), Paul Methot, Quebec's seed production, Professor Emile Lods, and W. Richardson, Canada Department of Agriculture Research Station, Lennoxville.

mediate the differences between them. At times I argued with the staff and at times with physical plant, always realizing that both had very real problems. Trying to maintain the ongoing College programs, particularly research, while we were moving people around was a real challenge. Temporary facilities were often unsatisfactory. My own Department wound up doing research in a chicken house.

LEW LLOYD *We have been in the Macdonald Stewart Building since 1978 and Plant Science moved into the Raymond Building in January '79. How do you think everybody is faring. I ask because some of the planning was for a smaller student body than we actually have.*

HOWARD STEPPLER Within the restrictions of the student growth that has taken place I think that we have very good facilities, but we are bulging.

I see real pressure for expansion — a new building within the next five to 10 years, unless we put very stringent restrictions on intake because certainly the pressure seems to be there from students wanting to take agriculture.

LEW LLOYD *We were talking about committees. Any highlights at the provincial and national level?*

HOWARD STEPPLER The provincial committees that I have worked with most would be the ones on the old Quebec Seed Board dealing with

recommendations for forages and crops for Quebec. I made the same contributions that other members made: conducting experiments, planning, re-evaluating and attempting to go forward. On the national level there are three activities that I was involved in that gave me a great deal of satisfaction. One in the late 60s was associated with the international biological program. We had a Canadian program and I was Chairman of one of the sub-committees and I persuaded the members that we should be doing something on germ plasm conservation and germ plasm exploration and what finally came out of that was the establishment of a Canadian office, the setting up of a permanent secretariat, and a national committee. I do feel some satisfaction in seeing that done as I also appreciated being involved with the World's Fair in Montreal, EXPO 67. I had the opportunity of working on a national committee to plan an agricultural pavilion and later took over as chairman of it. I was involved in the planning, the design of the pavilion, and ultimately in the management of it. I derived a great deal of satisfaction in being able to present to the general public what I thought was a picture of agriculture, the contribution it had made in the past, that it was making at the time, and would make in the future.

Again on the national level we established a program called the Canadian Forage Seeds Project and this had University, government, and industry

people on it. Working with Dr. George Dion, the Dean at that time, I proposed and the University accepted a proposal in which we set up a program of releasing our cultivars to the seed industry for them to multiply, and this turned out to be extremely effective and has been the pattern followed by many other universities in Canada. In fact, there is now a national organization called SeCan developed by the Seed Growers Association which is following that same kind of pattern.

LEW LLOYD *You were Chairman of the Agronomy Department for a long time and I recalled recently that you had also been Chairman of the Horticulture Department. You were also the first Chairman of the current Department of Plant Science which was formed in 1976 and included the old departments of agronomy, horticulture, plant pathology, and the genetics lab. You have had eight years as a Department of Plant Science; how has it worked out?*

HOWARD STEPLER You no doubt see this as another parallel in our lives as you were the first Chairman of an integrated Department of Animal Science. You had some of the same kinds of problems and there is no question but that there are problems when

you combine departments, some of which existed as independent units since the beginning of the College. There were growing pains, but I think it has been successful. One of the more obvious advantages is being able to consolidate some of the administrative activities. As well we have been able to develop research facilities, such as the growth chambers, which we would not have been able to develop in quite the same way as independent units. We have better greenhouses facilities and are able to share equipment. The place where it shows most though is in staff meetings where it is an interdisciplinary group that sits down to discuss common problems.

LEW LLOYD *All with the plant as the common denominator.*

HOWARD STEPLER Yes. Team research is growing, and this is one thing that we do in our Department. Every graduate student, for example, has an advisory committee that contains a staff member outside of his or her own field of activity. We bring together more disciplines into the student's research and this is spilling over into staff research.

LEW LLOYD *You have been involved*

since the early 60s when you first went to Trinidad with a number of international organizations. Any highlights of your association with these organizations.

HOWARD STEPLER I was agricultural advisor to CIDA (the Canadian International Development Agency) for 1½ years and was involved in advising the officers on the feasibility, viability and possible changes, etc., in any agricultural program that they were contemplating supporting on a bilateral basis literally in any country in the world. I travelled all over the place looking at the various programs. The satisfaction you get is when you see a possibility for a real Canadian contribution and can get something started. Getting aid into a country is a long process and I was only there 18 months. I got a lot of projects started, but did not see many actually get into full activity. My real accomplishment with CIDA was to set up a plan in which they agreed to support a back-up research program in both CIAT (Centro Internacional de Agricultura Tropical in Cali, Colombia) and CIMMYT (Centro Internacional de Mejoramiento de Maiz y Trigo, a wheat and corn centre in Mexico). This had never been done before. They put money into the core of the program and into back-up research designed specifically to bring Canadian research institutions into tropical agricultural research. We got the Universities of Guelph and Manitoba deeply involved in the triticale program in CIMMYT, and through the same kind of program at CIAT we got the microbiology group at Guelph involved in developing a protein enrichment program with cassava. We got a cassava virus program going here at Macdonald first with Professor Dick Hamilton, later with Professor Jean Peterson. We also had a taxonomy program here with Professor Bill Grant, and we had a tissue culture program at the Prairie Regional Lab at Saskatoon. These were very successful programs.

I was directly involved with ICRAF (International Council for Research in Agro-Forestry) because I went to their headquarters in Kenya as an Interim Director General to help them establish clear objectives, research programs, and policies that would carry them forward. I was there for 10 months.

Some Highlights in the Career of Dr. H.A. Stepler

- 1954-66 Chairman, Macdonald Pasture Research Committee
- 1958 President, Canadian Society of Agronomy
- 1964 Visiting Professor of Agronomy at the University of the West Indies, Trinidad
- 1964 Merit Certificate from American Grassland Council for outstanding service to grassland agriculture
- 1964-65 President, Agricultural Institute of Canada
- 1965-67 Chairman, National Advisory Committee for Agriculture Pavilion — EXPO 67
- 1965-68 Chairman, Macdonald Centennial Symposium on Food for Man
- 1965-73 Chairman, Sub Committee on Use and Management of the International Biological Program
- 1966 Elected Fellow of the Agricultural Institute of Canada
- 1970 Honorary Life Member, Canadian Seed Growers' Association
- 1970-71 Special advisor in agriculture to the Canadian International Development Agency (CIDA)
- 1971 Advisory Committee on Triticale Program, Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT), Mexico
- 1971 Member of Advisory Committee on Cassava and Swine Program of Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia
- 1971-74 Chairman Board of Directors, McGill Centre for Developing Area Studies
- 1972 Elected to Board of Trustees, CIAT — first Canadian to hold an elected position in any of the international agricultural institutes.
- 1973-74 Elected a Research Fellow by International Development Research Centre, Ottawa — first Canadian to receive this award
- 1974-80 Chairman, Committee on Physical Facilities, Macdonald
- 1976 Elected to Board of Trustees, Agricultural Development Council (ADC), New York
- 1979 Elected member of Executive Committee (ADC)
- 1979 Elected Trustee, International Service for National Agricultural Research (ISNAR), The Hague, The Netherlands
- 1980-81 Appointed Interim Director General, International Council for Research in Agroforestry (ICRAF), Nairobi, Kenya
- 1981 Elected Chairman of the Program Committee of the Board of Trustees, ISNAR
- 1983 Elected to Board of Trustees of ICRAF and Chairman of program committee.
- 1984 Elected to Board of Trustees of ILCA (International Livestock Centre for Africa).

LEW LLOYD *Our people are being sought by agencies and foundations to help in the area of international development in agriculture, but we have to draw a line somewhere. It is difficult to tell somebody that they shouldn't go off on an international assignment, but if we have a lot of people doing that then our own students are going to suffer. On the other hand, we have to do our share. Do you see any solution?*

HOWARD STEPLER The agencies have to recognize that a university faculty has a responsibility to its undergraduate and graduate population. It has to maintain its services, and it can only do that by maintaining its staff. The agencies have to make it more feasible and flexible for a faculty to have a few floating positions that they can use. It disappoints me that developing countries have not really felt the benefit of the full presence of Macdonald College. They have had the benefit of a single person or a small group, but they really haven't felt the benefit of the background and the whole strength of Macdonald — they just don't know what exists here. I think it is in very large measure because of the reluctance on the part of donor agencies to really make it possible for a faculty to move into this kind of activity without stripping its own staff.

LEW LLOYD *On a more personal note: you met your wife Phyllis during World War II in England. She has been a Canadian and a Macdonald wife for a lot of years now. How has she borne up under this, particularly with your jaunts into the international field?*

HOWARD STEPLER First, let me set you straight on one point. Phyllis was a Canadian before I married her. She was born in Canada and had gone over to England with her parents, and I rescued her and brought her back to Canada! While there were something like 40,000 war brides, she was not an English war bride; she was a Canadian war bride coming back to Canada. Wherever there has been an opportunity, Phyllis has travelled with me. For example, when I was Visiting Professor in Trinidad back in the 60s, Phyllis and my son were there. She has travelled with me on a couple of round-the-world trips visiting research cen-

tres and development programs.

As far as the campus is concerned Phyllis and I feel very much a part of the clan. We lived on the campus for almost 20 years, first in Diaper Dell. We were the third family to move into Diaper Dell. We were in A 14. (Lew Lloyd lived in A 10.) Jack Hare lived down the row from us as did Bud Brittain and Barbara Poole. Glen our son grew up here. The College has been a large part of our life and it is difficult to think of not being around here. I remember that when we came as staff members Mrs. Maw was president of the Women's Union (later the Women Associates) and the first thing she did was get Phyllis into the Union. You recall some of the things they used to do: the Baccalaureate Tea every spring and welcoming the Women's Institutes at their annual conventions — where the Women served sandwiches and poured tea. The mark of having arrived was when you wound up pouring tea, not serving it! Phyllis was president of the Women's Union three times.

LEW LLOYD *I'm interested in your suggestion that we have Visitor's Chairs to deal with current topics.*

HOWARD STEPLER There are new areas breaking and developing in agricultural research and related research whether it is in chemistry, biology or physiology. The contacts that our on-going staff have with some of these new ideas is through going to meetings or workshops, or reading journals. My idea is that we should have a Distinguished Visitor's Chair that would enable us to bring in a person who is at the forefront of one of these new areas; say in genetic engineering in terms of disease resistance. Have someone come in for a year, initiate some research, get some of our staff members interested in the subject and then see if it is an area that we can develop. I don't expect that every one of these Visitors is going to result in the development of a new area of research within the Department or within the Faculty, but we are going to have new ideas and new stimulations coming in regularly. I would not go out and beat the bushes trying to get money to establish a Chair in Plant Science which was sedentary. I would rather see a Distinguished Visitor's Chair that carried a good stipend so that we could attract

somebody for at least a year, possibly even two.

LEW LLOYD *How many of these Distinguished Visitor's Chairs should we have?*

HOWARD STEPLER Three to begin with. One in the plant sciences and one in the animal sciences. Agriculture just doesn't exist without plants and animals, and I would have a third one in the non plant non animal sciences to begin with.

LEW LLOYD *Would you give us some of your thoughts on the future of agriculture?*

HOWARD STEPLER First of all, Lew, I see an extremely bright future for agriculture. I don't see anything except expansion, success, and new challenges. There have been many studies done by international organizations on the demand for trained people in agriculture and the demands for food itself. The needs are tremendous. Something of the order of 80,000 people by the year 1990 is the sort of projection that you hear if the requirements are to be met. When I work with some of the international organizations like ISNAR (International Service for National Agricultural Research) I see that most of the problems are that they don't have trained people; they don't even have people at the bachelor's level, let alone at the Masters or Ph.D. They may have one Masters in the whole country and that's their research system.

Here in Quebec and in Canada there are going to be changes in the pattern of agricultural production and where it takes place. Some of the projections are for increases in cereal and animal production. These can only take place by displacing some of the animal production, particularly beef, into non cereal areas. Dairy production is probably going to stay where it is; beef production will probably go into the fringe areas and the only way it can move in to those areas is to have new technology developed for those areas — Class 3 and Class 4 types of land. There are real challenges right within Canada and we are not really meeting them. I see nothing except a very bright future for the Faculty, for our graduates, and for agriculture in general.

1,600 reasons for . . .

. . . The Horticultural Information Centre

by Véronique Pourbaix

Although trivia questions may be in at present, the 1,600 queries for advice and information that were handled by the three girls manning the Horticultural Information Centre (HIC) at Macdonald last summer were answered as seriously and as thoroughly as possible. The Centre, which was funded by the federal government as a Summer Canada Community Project, was first established in 1982 by three female students from Macdonald. The 950 queries received that year strongly suggested that the service be continued.

Most of the questions concerned outdoor plants, their problems, care, and cultivation, but the staff also gave advice on such things as house plants, pests, fertilizers, and insecticides.

The staff for the summer of 1983 were: Lucie Gagné, the Director of the project, Natalie Knott, and Véronique Pourbaix. Lucie Gagné had just received her B.Sc., majoring in Horticulture, and her past experience included summer work in the field in the St-Jean Research Station for one year and at l'Assomption Research Station for another. Her main interest is in the production and care of horticultural crops. Natalie Knott was in her second year, majoring in Agronomy. She also brought a fair bit of administrative experience to the job. The author did her B.Sc. at the University of Ottawa and took courses in Plant Science at Macdonald for two years. Her main interest is in plant pathology.

The queries came by telephone, by letter, and in person with visitors armed with sick or buggy plants dropping to the HIC office, which was located in the Centennial Centre. The higher number of questions over the previous year was probably due to the great coverage given by the media: including CBC television, which included the Centre in the local news, various radio stations publicized and/or interviewed the girls and HIC, and both French and English news-

papers included the Centre in their gardening sections.

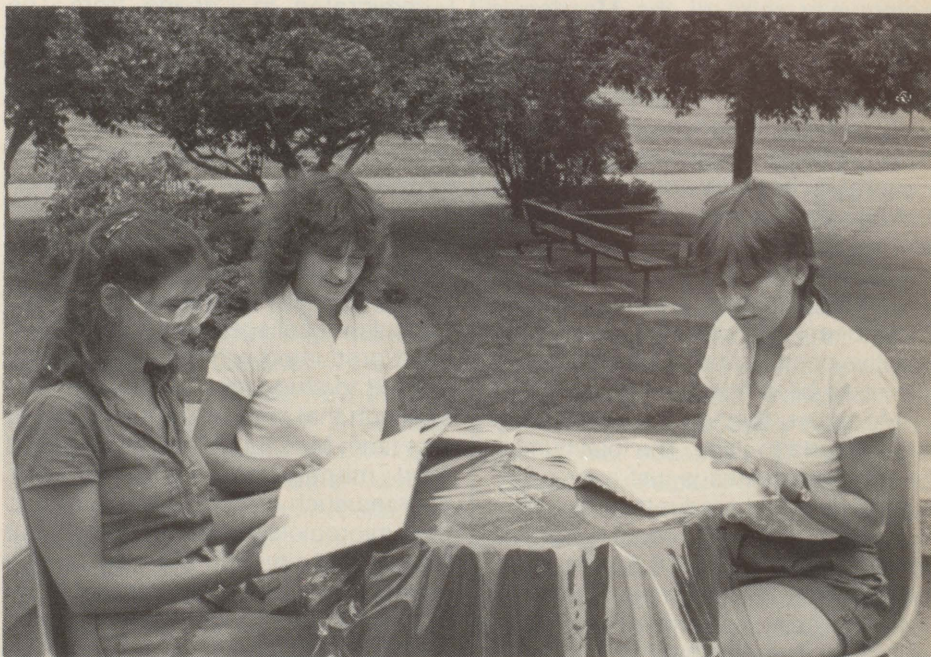
An added bonus for HIC was being located on campus with access to the Library, the Ecological Agriculture Project, the Lyman Museum, Extension Service, Entomology, and Plant Science, and particularly the professors and graduate students. In cases where the description of a problem over the telephone was not sufficient, the girls would make house calls for the cost of the gasoline.

Apart from the normal queries, the girls held a conference on gardening for a senior citizen's group, they acted as judges for the "Villes et Villages fleuris" contest held in nearby Pierrefonds, some gardening articles were written for a local newspaper, an information booth was set up at a festival held on nearby Ile Perrot, and a guided tour of the College grounds was given to people attending an Ordre des Agronomes meeting at Mac.

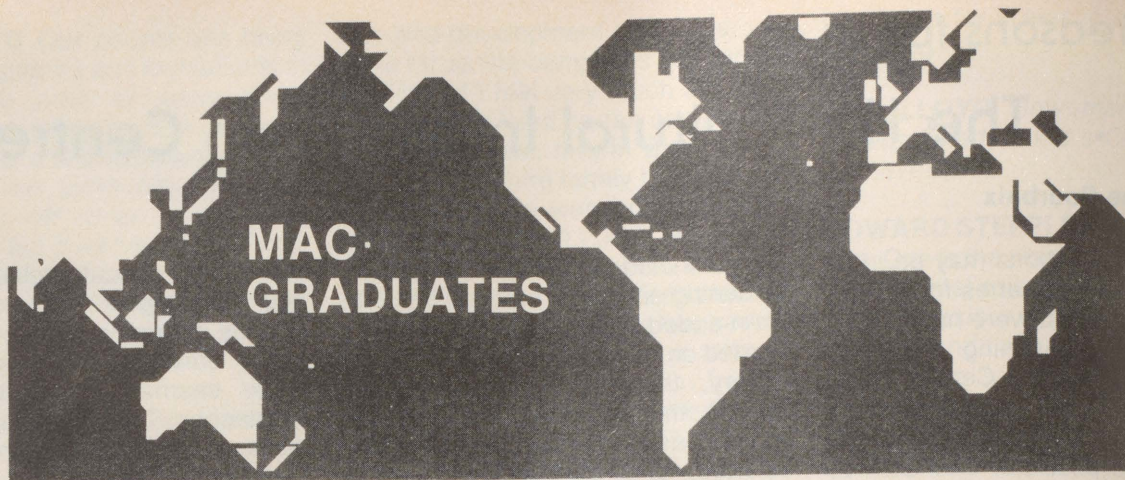
The basic routine consisted mainly of giving advice and occasionally sending out free government pamphlets. Finding the answers to some

of the more difficult problems also added to the girls' knowledge. Many queries came in concerning apple scab, earwigs, carpenter ants — these seemed to be the biggest headaches. Tree cankers, dutch elm disease, birch leaf minor, spruce budworm, tree borers, and fungal diseases of tomatoes were also among the most common problems. Gardeners were hesitant about the application of fertilizers, the proper spacing between vegetables, and the general care of fruit trees and some flowers. The population seemed aware of the dangers associated with pesticides but did not always know their exact uses. In most cases, biological methods of control were suggested first. House plants that were playing tricks on their owners by losing their leaves and turning yellow or brown were also dealt with, with the same enthusiasm.

Plant lovers and amateur gardeners were very pleased with the service which, it is hoped, will be offered again this year. It is a valuable experience for Plant Science students.



The three students in the 1983 HIC program, Véronique Pourbaix, Lucie Gagné, and Natalie Knott, study some new reference books while enjoying the sunshine on the terrace of the Centennial Centre.



From Alberta to Zaire

by Tom Thompson
Macdonald Branch of the
Graduates' Society of
McGill University

Every university or college accepts as part of their responsibility the role of preparing students to accept challenging tasks in a rapidly changing world. Macdonald has fulfilled this role easily while undergoing a decade and more of rapid change itself, which is a reflection of the social change going on in the world today. At Macdonald, there is a good example of learning to live together and an opportunity for individualism within the context of the community spirit of the Macdonald clan. Attitudes of leadership have developed, and there are numerous examples of determination and hard-work which Macdonald graduates have willingly accepted. Macdonald generates research and knowledge to the benefit of society. It ranks third in the Faculties of McGill University in terms of research grants and research contracts awarded, and its graduates have been well prepared to make a positive contribution to what seems, at times, to be a fragmented world.

Moreover, they do this in locations from Alberta to Zaire. The total number of living graduates is just over 4,500, and Macdonald graduates are part of communities coast to coast in Canada, in the Territories, in 38 States of the U.S., and in 29 countries around the world. Their leadership and work reflects a diversity that often seems to be far from their original Macdonald program. A few examples: A.J. Lutalo-

Bosa, M.Sc. (Agr.) '67, Ph.D. '70, is a Professor of Biochemistry and Dean of the Faculty of Science at Makerere University, Kampala, Uganda. Bashir H. Suman, B.Sc. (Agr.) '80, is at Agriculture College in Australia. Steve Hart, B.Sc. (Agr.) '60, is in Pittsburg as Executive Vice-President of Air Pollution Control Association. Moe Gerard, B.Sc. (Agr.) '53, is Senior Accounts Executive at Imperial Oil. Murray McEwen, B.Sc. (Agr.) '53, is President of Redpath Sugar and Vice-President

of Redpath Industries. George Bovell, B.Sc. (Agr.) '45, has been appointed to his second four-year term as a Senator in the Government of Trinidad-Tobago. Karen MacAulay, B.Sc. (Agr.) '51, is working at the Greenhouse Project in Glace Bay, N.S. J. William Ritchie, B.Sc. (Agr.) '51 is President of Scotia Bond Co., and a Director of East Coast Energy Ltd. Pierre Jutras, B.Sc. (Agr.) '51, is in Senegal as a Consultant. William (Ted) Bambridge, B.Sc. (Agr.) '50, is Vice-President, International

LETTER FROM HOLLAND

It was 18 years ago that my wife and I immigrated to Canada from The Netherlands and, after living in Canada for 15 years in four different provinces, we are back in Europe.

I chose Mac for my studies because we wanted to immigrate to Canada for a better future, and I could enter Mac in the third year after graduating from the State Agricultural College in Dordrecht, Holland. During the 50s and 60s quite a few students from Dutch agricultural colleges entered Mac and most graduated without difficulties. I wanted to study food technology and although that was not being taught at that time, Mac taught a course called food management. The science courses such as food chemistry and food microbiology were thorough, but Mac at that time did not have a pilot plant with processing equipment so we took food related courses with Home Economics students. Cooking classes were taken with four guys and 60 girls — which was fun for us guys — and

we learned the basic art of cooking.

Studying at Mac was exciting because you lived in a multinational environment, and we were readily accepted among the Mac students and professors. Life at Mac was fast and intense: we studied for a career which was as yet unknown. I enjoyed playing soccer, and we had a team with players from all parts of the world, even one Canadian!

After graduation I was offered various positions in the food processing industry and in the hotel and restaurant business. Mac was one of the few Colleges which taught food management and the food industry was expanding. Having a sincere interest in developing new food products, I chose the food processing industry for a career. The change from college to work was easy but ambitions for more general management knowledge led me to getting a Masters in Business Administration in international business at McMaster University in Hamilton.

It is impossible to learn to be a

Operations for Msdagvet, Division of Merk & Co. Gary R. Cameron, B.Sc. (Agr.) '67, lives in Athens, Greece, where he is Manager of Technical Services in the Eastern Mediterranean for Pepsi Cola International Ltd. J. Murray Elliot, B.Sc. (Agr.) '49, is an Animal Scientist at Cornell University and

received a teaching award in dairy production from the American Dairy Science Association in 1983. Freeman L. McEwen, B.Sc. (Agr.) '50, is the Dean of the Ontario Agricultural College at the University of Guelph. Don Parchment, B.Sc. (Agr.) '60, is growing and exporting koca nuts used in the

cola beverage industry. Sam Portch of the same class, is with the International Agricultural Service in Bangladesh. Doug Logsdail, B.Sc. (Agr.) '53, is President of Potash Corporation Sales in Saskatoon, and Dr. David Hopper, B.Sc. (Agr.) '50, is Vice President (Southeast Asia) for the World Bank in Washington, D.C.

If we were looking for an example of a capable and organized person, perhaps another Macdonald graduate deserves mention. A graduate of the Class of B.Sc. (Agr.) '74, Donna M. Langille of Tatamagouche, N.S., is married and works as Assistant Secretary-Manager of the Nova Scotia Federation of Agriculture. She also manages a farm producing 1,500 hogs per year along with some horses and cattle. What does she do with her spare evenings? She manages a Gulf service station!

REUNION '84 CLASS EVENTS CHAIRMEN

At a special reception in April, Class Chairmen were invited to share ideas about planning a Reunion event and give suggestions to the Reunion Committee for its general events. Those Class Chairmen who are either preparing or issuing their class newsletters and questionnaires are as follows:

Mr. Jack Sadler	— Agriculture & Food Science 1979
Mr. Jim Gendron	— Agriculture & Food Science 1974
Mr. Cameron Clarke	— Agriculture & Food Science 1969
Mr. M. Pirhonen	— Agriculture & Food Economics 1964
Miss Janet Finlayson	— Agriculture & Home Economics 1959
Mrs. Dorothy Sager	
Mrs. Barbara Wilding	— Agriculture & Home Economics 1954
Dr. Herbert F. MacRae	
Mr. Frank A. Whitteker	— Agriculture 1949
Mrs. Dorothy Sim	— Home Economics 1949
Mrs. David Dunbar	— Agriculture & Home Economics 1944
Mr. B.J. Finn	— Agriculture 1934
Miss F. Elizabeth Kemp	— Home Economics 1934
Miss Barbara J. Dougherty	— Agriculture & Home Economics 1929

manager at college. An MBA provides fundamental knowledge, which is helpful, but the real test starts in the field. Setting and changing priorities at the right place at the right time and getting along and understanding people are important in the business world, and at Mac these values certainly were being taught.

After working for 10 years in the food business at various R&D (Research and Development) management levels, I got an opportunity to move to the Maritimes as General Manager of a mid-size fish processing company. The fish business was and still is having problems that cannot be easily solved by a manager. Government regulations, fluctuating foreign demand for Canadian fish, and the dependence of the coastal population on the fish industry for employment are difficult to change by individual companies.

During our stay in the Maritimes I worked with Mr. Harrison McCain which later led to a job offer that I accepted. After having worked for six

months at the head office in Florenceville, New Brunswick, I was asked to go to Europe and manage the McCain activities in Holland, Belgium, Germany, Italy, and Scandinavia. During the last 2½ years I have been Managing Director of McCain Europa B.V. It is fascinating to work for a private Canadian company abroad. The big difference here is that I work daily with four languages, different cultures and habits, and many currencies. Socially, on the other hand, Holland is a densely populated country and we sometimes miss the space and freedom of Canada.

People ask us where we'll go next. McCain Foods Limited is a large multinational company, and we could be transferred to another division within the next three years, depending on where the opportunities and challenges are. We will be back in Canada sometime, but when is difficult to predict.

**P. van der Wel
Wassenaar, Holland**

Another Look at Reunion '83

It has been interesting to read the letters from Class Representatives who helped to organize Reunion '83. Our Class of '53 had a fairly successful turnout; 22 of 83 official classmates plus wives or husbands and children, for a total of about 48.

Although I visit the campus regularly, many of my classmates had mixed feelings about the new campus. For some there was a somewhat sad and nostalgic longing for the Main Building and the Oval. Most of the 53ers had been back at Macdonald five years ago. Elaine Mills, however, had not been back since graduation, and we had not seen George Massicotte for many years. The majority of our class are still in Canada: two came from Saskatoon, one from Edmonton, and the rest from Quebec and Ontario.

Looking back, I particularly recall the social occasions and life in residence which was, I feel, a big factor in our overall education — something that is possibly lacking now. Our social occasions at Reunion included a class party on Friday night at Bob Heslop's and brunch at Shirley Pashleigh's on Sunday.

I think that the Macdonald Journal is an excellent vehicle to improve communications for those that subscribe.

**Pat Reynolds, B.Sc. (H.Ec. '53)
Montreal, Que.**

INTERNATIONAL STUDENTS

by Albert St. Clair*

**(Albert St. Clair is a M.Sc. student studying Community Development here at Macdonald. Mr. St. Clair first took CEGEP training and then received his B.Sc. (Agr.) in 1982, all as a CIDA trainee. Back home in St. Lucia he works for the Ministry of Agriculture and is a Principal of the St. Lucia College of Agriculture.)*

The presence of international students at Macdonald goes far back in the College's history. Students come from all over the world — the Caribbean, South America, Africa, Asia, Europe, and Australia — and can be found in nearly all disciplines and are keen participants in both academic and extracurricular activities. In these activities one cannot help but observe the various cultures, the similarities, and the differences that may bring about conflict, harmony, or compromise. The manner of speech, the method of doing chores both in classroom situations and in residence, as well as at social gatherings may vary greatly from one culture to another, but all these variations add a wonderful richness to the already cosmopolitan atmosphere of the Canadian mosaic within and without the perimeter of the College.

The students form associations under the auspices of the Students' Council; the International Students' Association, Muslim Students' Association, Caribbean Students' Association, and others. The different associations help students from similar geographical areas of the world or from similar cultures and religious beliefs to preserve and consolidate those beliefs and traditions. They also help to expose such beliefs and traditions to Canadian students and public alike, and the overall importance of this cannot be over-emphasized.

The international students come to McGill University, especially Macdonald College, because of the worldwide acclaim of the calibre and professionalism of graduates from all disciplines which this University has produced and dispersed throughout the continents and islands of the seas in both temperate, tropical, and sub-tropical climates. The ambassadorship of the many professors of this College travelling as consultants in their respective fields in many countries is second to none and has certainly in-



Albert St. Clair, second from left, and fellow students work on their display for this year's most successful Royal.

fluenced many to come here as students.

It is very sad, however, that inflation had to take its toll in that the increased cost of studying at this University as well as others in North America has, in part, caused a dwindling in the

number of students that would like to have an opportunity to study here.

When the reply to the question "Where did you receive your degree?" is "McGill or Macdonald," the look of approval on the questioner's face is both dignifying and gratifying.

"COME BACK TO REMEMBER
THE DAYS
IN SEPTEMBER . . ."

REUNION '84

All welcome, especially graduates of years ending in '4 or '9.

KEEP THESE DATES OPEN!

SEPTEMBER 28

—Opportunity for Class Parties or warm-up.

SEPTEMBER 29

(highlights, tentative)

- Graduates' Luncheon. Special recognition of the 50th anniversary class.
- Graduates' Dinner-Dance honouring the 25th anniversary class of 1959.
- Van tours of the campus.
- Seminars on various topics.
- Plus much more . . .

FURTHER DETAILS TO FOLLOW

For information on Class Newsletters and Class Reunion Plans contact:

Susan Boyle, the Graduates' Society of McGill University,
3605 Mountain Street, Montreal, Quebec H3G 2M1 or call
514-392-4815.

A Proposed International Agriculture Program

by Professor Eugene Donefer
Department of Animal Science

Macdonald College has always had an international orientation. In the earlier years of our existence this had been primarily due to the presence of foreign students who came to our campus to obtain undergraduate and post-graduate degrees. Anyone travelling through almost any Caribbean country will meet Macdonald alumni who now occupy head positions in government and industry. In a later phase, transfer students arrived from The Netherlands, many already with training in tropical agriculture. Several of these alumni now occupy positions in the World Bank in Washington and the International Development Research Centre (IDRC) in Ottawa. Increasing graduate student numbers from Asia and Africa characterized the 60s and after and has been followed by representation from Latin America and China.

A new Macdonald College international orientation that has developed over the past decade is that expressed by Canadian students who have been becoming increasingly interested and involved in agricultural and food developments on a world-wide basis. This interest is manifested in many forms. The CUSO organization has become one of the active student groups on campus, sponsoring many daytime and evening programs (films, guest speakers, etc.). A growing student international perspective has been paralleled by the very much augmented international activity of the faculty staff. No longer staying as close to home as in the past, a student survey last year indicated about one third of staff had been involved in international travel varying from sabbaticals and leaves of absence (of a year or more in duration), to shorter overseas assignments with government and private agencies, to attending International Conferences for shorter periods of time. World Food Day Observances (October 16), started three years ago, have become another area of high student participation.

International Agriculture (originally called Comparative Agriculture) has been offered as an elective course for

the past eight years with class sizes of 50-60 students per year. The Tropical Agriculture Field Tour came into existence in 1983, and over 30 people travelled to Jamaica and Cuba in the first year.

Due to the limited time available in our three-year undergraduate program, with its emphasis on obtaining strong training in some aspect relating to the agricultural sciences there is little opportunity for further expansion in internationally-oriented courses. This realization has led to the concept of developing an International Agriculture post-graduate program, with Macdonald students collecting over 200 signatures last year in support of such a new program.

In May, 1983, at a two-day meeting of Faculty to review its programs and plan its future direction, a student-staff proposal for an M.Sc. program in International Agriculture was accepted in principle, with a directive to start the procedures for its establishment. This has led to an establishment by the Dean of an Ad Hoc Committee on a M.Sc. in International Agriculture which is working in close association with involved students.

A draft outline of the proposed program indicates that although its candidates will primarily be B.Sc.

agriculture graduates, non agriculture graduates would be able to take a qualifying year in agricultural subjects prior to entrance in the post-graduate program. This latter option is in recognition of the increasing number of students transferring to agriculture from basic science and even arts programs because of a desire to become involved in a problem-solving discipline. The course structure of the proposed program would involve a three-term period including tropical aspects of soils, plants, and animals, development technology, and project management, as well as courses in food and nutrition and social and economic policies relating to developing countries. The M.Sc. program is envisioned as a non research degree in that a thesis based on experimental work will not be prepared. Instead there will be a requirement for a project to be carried out for a four-month minimal period in a developing country. This foreign residence period could be in conjunction with the student participating in an overseas project such as is sponsored by CUSO, Canada World Youth, or other similar organizations, or could involve programs with direct McGill contacts with institutions in developing countries.

Although such programs exist in



At last fall's World Food Day a display for the proposed M.Sc. International Agriculture Program at Macdonald was set up and manned by involved students.

other countries (in the United States at Cornell, Michigan, and California), the establishment in Canada of an International Agriculture Studies program at Macdonald would have special significance due to the cosmopolitan nature of our location and student body and would add to the attractions to be experienced by potential students from other parts of Canada. Although primarily not designed for foreign students, since their primary goal in Canada is to gain scientific expertise to help them contribute to the development of their countries, their presence at Macdonald and participation in the international courses would be an excellent exchange and educational experience for both Canadians and non Canadians.

Lastly, having completed a M.Sc. in International Agriculture what are the career opportunities for Canadian students? One option would be to prepare for a research-oriented profession by proceeding to a Ph.D. program with a specific agricultural orientation, since the majority of overseas assignments available to Canadians deal with technical specializations. The non research route could relate to employment in the approximately 100 Canadian-based non government organizations (NGOs) involved in international programs. Federal and Provincial Governments, having an increasing involvement in agricultural development programs overseas, are another source of employment for international agriculture graduates who will combine technical expertise with an understanding of the problems of developing countries. The many college graduates who become involved in two-year CUSO assignments would now find an opportunity to utilize their experience as part of an academic program. Canadian business, which to an increasing degree is dependent on two-way markets with developing countries, could also utilize M.Sc. international agriculture graduates in their employ.

The final and most immediate question is who would pay to establish and maintain such a program which would require additional staff in the Faculty? It is hoped that funds could be obtained from the public and private agencies who would most benefit from having an available pool of Canadians whose training has included an international orientation.

The CUSO Presence on Campus . . .

by Joan-Frances Tuck*

**(Joan-Frances Tuck is the Co-ordinator for CUSO in Quebec and a part-time student at Macdonald. She spent six years working in Southeast Asia, most of it in a rural manpower utilization study.)*

CUSO used to be an acronym but now is the official name for an international development organization that has since 1961 had some 8,000 skilled Canadians working in developing countries. CUSO committees have been on the Macdonald campus for many years and anyone around these days cannot but be aware of their presence. Posters appear regularly advertising evening Information Meetings on subjects as diverse as Aspects of Chinese Agriculture, Living through the U.S. Invasion of Grenada and the role of CUSO in agricultural development work overseas.

Other, more permanent posters this term have alerted people to a weekly film series on development run at noon hour in the Centennial Centre. The committee was also very much involved in preparations for World Food Day activities.

The CUSO committee has been run entirely by students, among the most active; Karina Baker, Maria Brandl, Terrence McRae, Julian Passerini, Raoul Powlowski (Chairperson), Pierre Proulx, Rosemary Villani, and David Weiss. In bringing international issues to the attention of the students and Faculty of the College, they have continued in the tradition of the past several years. Several Faculty and staff have expressed the opinion to me that the CUSO committee has played an important role in increasing the interest in and awareness of international issues at the College over recent years. The other side of the story is the work that Macdonald graduates are doing overseas with CUSO.

One Macdonald graduate, David Smith (Dip. '82) should be arriving about now at his posting in Mozambique, after spending two months in Lisbon to learn Portuguese. He will be working for CRED, a Mozambican participatory research and development program, at a rural development centre in an isolated area in the North. The thrust of the centre's work is pro-

moting crop production, animal husbandry, and cooperatives in the family farm sector. David's duties will include a study of agricultural practices on local family farms, responsibility for trials and demonstration plots on the demonstration farm, extension to local farmers, and some administrative tasks.

Self-help Projects

Another graduate of Macdonald, Doug Johnson (Dip. '74), recently completed a two-year posting as an agriculturist in the southern Sudan. Between graduation and joining CUSO in 1982, he had done a wide variety of things and had acquired skills in horticulture, cereal crops, goat and poultry production, solar heating, wind energy, aquaculture, greenhouse design and management, adult education and extension work, carpentry, basic plumbing, auto mechanics, and farm management. His jack-of-all-trades tendency served him well in the Sudan, where he was the first agriculturist and one of the first foreign cooperants to work with ACCOMPLISH, a local development organization whose approach is to encourage and support local self-help projects.

Doug found himself not only trying to set up an agricultural program, but also responsible for supervising an already existing wells project over a large, very isolated area. In his first year he was confronted with the full severity of several local problems. The first to affect him was lack of a means of transport. He did manage to get around to visit parts of his district, however, and he was able, through meetings with groups of local farmers to learn about their problems and priorities. He was also soon able to obtain new varieties of seeds as well as 100 chickens that were larger and more productive than the local ones. These were used in a demonstration project, and also to upgrade the local stock.

Even after Doug obtained a vehicle transportation remained a constant problem. Every time anyone with a vehicle (reliable or otherwise) set out to go anywhere, there were twice as many people with their goods waiting for a lift as the vehicle could carry.

... and Beyond

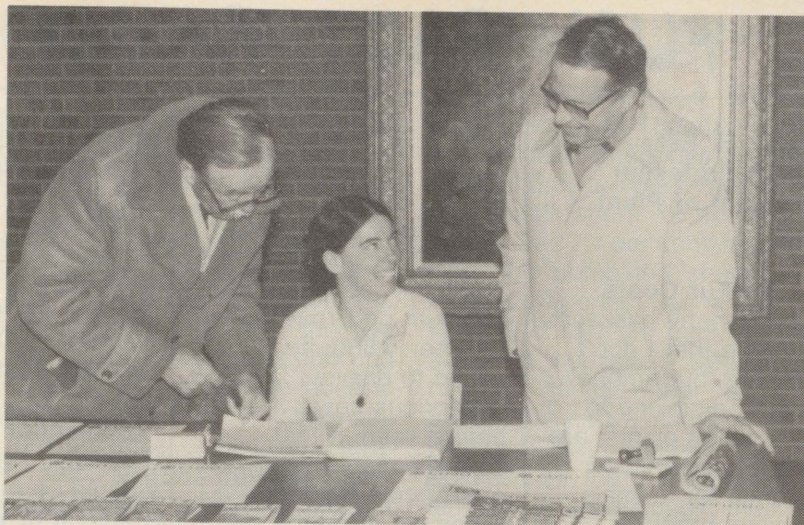
Because of the lack of transportation available. Controlling loads and maintaining vehicles mechanically was a constant headache.

The second major problem he experienced that year was drought. Doug was able to get in only half of his demonstrations and trials and everything did poorly. The local farmers, with their greater experience in dealing with these conditions and more time to give to their crops, had somewhat better results in terms of yields but were not able to produce enough food to live on that year.

As the very poor growing season drew to a close and the dry season started, Doug's attention went entirely to the wells project. In that year of drought, people were concerned not with the quality of their water but with having any water at all. Those who did not have water within a day's walk had to abandon their villages, leaving their food and seed supplies unguarded and accessible to thieves and monkeys. Most of them went to the cattle posts, those areas which traditionally have been used for herding cattle, because they have reliable sources of water through the dry season.

Earlier in the year there had been an outbreak of Rinderpest at some of these cattle posts. The fact that Doug had contacts with the Ministry of Agriculture and that he could arrange transportation made it possible for him to arrange the vaccination of all the cattle in the district during the course of that dry season. This was the first time that this Ministry service had reached them, and the farmers were very pleased.

As the rains started again and people began to cultivate their fields, many of them were too weak from hunger to put in more than a few hours of work each day. A combination of chance, having a vehicle, and doing a good turn enabled Doug to obtain some grain, which was used to set up a small cooperative store. He was subsequently able to get funding from CUSO to bring in some more grain from outside. The store made limited amounts of grain available to the 100 families that became members, tiding them over until their first crop, peanuts, came in. The store did not help most farmers, but it did give people an idea



Checking out Joan Tuck's latest CUSO information are, left to right, Dr. Howard Steppler, Chairman of Plant Science, and Dr. L.E. Lloyd, Dean of the Faculty of Agriculture.

which some of them at least want to continue and to expand upon. It also acted as an outlet for the seeds and tools needed by the farmers.

The second growing year was a good one. Doug decided to narrow the scope of his work to those things most

directly useful to the farmers. He concentrated on demonstration, multiplication of seeds for one variety of dura and two varieties of peanuts, and experiments in growing vegetables and fruits. The lack of the

(Continued on Page 39)

Overseas Opportunities

CUSO, Canada's largest independent international development organization, is seeking qualified and experienced people for the following positions in the Third World:

- Village Development Workers
- Farm and Cooperative Managers
- Agricultural Extensionists
- Animal Husbandry Specialists
- Horticultural and Crop Specialists
- Post-Harvest Managers
- Agricultural Loan Officers
- Agricultural Mechanics
- Sawmill Operators
- Wildlife Park Planners
- Home Economists
- Aquaculture Specialists

Contracts are for two years. Salaries are low (\$4,000 — \$8,000 per year), but adequate for overseas living costs. Placement takes at least six months and can be difficult for families due to inadequate medical and educational facilities for children. Couples can be placed if jobs are available for both partners. Contact the CUSO office in your area, or send your résumé to:

CUSO Agriculture-A2 Program
2515 Delisle
Montreal, Quebec
H3J 1K8

FUN FACT FABLE FICTION

by Ralph H. Estey
Emeritus Professor
Department of Plant
Science

The First Fur Coats

There are many passages in the Bible that I don't understand, but among the most perplexing to me, a lover of plants, are those that show God's preference for animals and animal products. All through the Bible, herdsmen and shepherds get far more favourable publicity than do tillers of the soil who produce vegetables and other plant products. Right from the beginning God showed that He had no respect for the man who offered Him fruit and vegetables, but did respect the first one to offer Him lambs and their fat (Genesis 4:4-5). To me, this is a clear indication that God liked meat but didn't care much for vegetables. On the other hand, Adam, with whom I have much in common, had a definite preference for fruit and for plants in general. He even made his first clothes out of leaves. God made it quite clear that He didn't like that leafy covering and, again showing his preference for animal products, made clothing for both Adam and Eve from the skins of animals (Genesis 3:21).

Vegetable Miners

Plants, including forest trees, will take more wealth from the soils of Canada in 1984 than has been taken from all the gold and silver mines of this country since Confederation.

A Cherry Coloured Cat

When P.T. Barnum of circus fame reopened his Museum on Broadway in October, 1860, he promised to display "a mysterious novelty never before seen in that establishment" — a cherry coloured cat. When his audience was primed, he removed the cover from a glass fronted display cage and revealed a very ordinary looking black cat. He explained that it was, of course, "the colour of black cherries." The onlookers applauded, newspaper reporters hurried off with their stories, and Barnum had scored another triumph.

Shipwrecked Suitors

Sailors used to tell ribald versions of a story about two seamen and a female cook being shipwrecked on a small island. If the two men were Spanish, so the story went, one would probably kill the other by some secret means. If they were Italians, they would fight for the woman. If they were British, nothing would happen until they were properly introduced. However, if they were French, they would have known what to do without making a big thing of it.

A missionary, thinking of the moral implications in such a situation, inquired of the rescued sailor: "Was the woman chaste?" "You're damned right she was," replied the sailor, "from one end of that island to the other."

A Grave Subject

Virtually everyone, with the possible exception of undertakers, agrees that the cost of modern burial caskets is excessive. I join the increasing number of Canadians who advocate a return to the simple, unadorned wooden coffin. I do think, however, that some effort should be made to match the kind of wood in the coffin with the status, profession, or personality of the occupant. For example, bricklayers and plasterers could be buried in coffins made of lime trees, computer specialists in apple wood, joggers in sandal wood, horticulturists in rosewood, carpenters in plane tree wood, pugilists in box wood, octogenarians in elder tree, politicians in slippery elm, poets in laurel wood, jockeys in horse chestnut, cowards in trembling aspen, metal workers in ironwood, dairymen in butternut. There are enough kinds of wood to suit the needs of the vast majority in this regard. However, in those few instances when the appropriate wood cannot be obtained, serious consideration could be given to the choice of plants used to decorate the graves of such unfortunate persons. Without deep thinking on this matter, the following combinations come quickly to mind: watchmakers and the four o'clock plant or thyme, priests and canterberry bells, lawyers and bindweed, physicians and boneset, cooks and buttercups. If some talented botanist would

set his mind to this subject, I am sure a long list of appropriate plants could be compiled from which suitable selections could be made by the bereaved.

Don't Fence Me In

In January, 1878, George Fenety lost his bid to continue as mayor largely because he proposed to make it illegal for cattle to run loose in the streets of Fredericton. His opponent, George Gregory, won the election with the popular cry of "Don't fence me in."

Fact or Fable?

Modern scientific evidence to substantiate the biblical story of the flood has come from deep sea-bed cores collected in the Gulf of Mexico. Nearly 10 years ago researchers from the University of Miami, Florida, found that the global sea level rose substantially some 11,600 years ago (*Science* 189: 1083). That happens to be the date that Greek philosopher Plato estimated to have been the time of the flood. It also coincides with a time when great glaciers and icecaps were melting.

Ancestor

The man who boasts only of his ancestors confesses that he is a member of a family that is better dead than alive.

Miracle Drug

A miracle drug is one that does what its label promises. (A.C. Menon)

Development and Performance of Generic Foods in Canada

by Osama Al-Zand
Department of Agricultural
Economics

This article is largely based on an earlier version by O. Al-Zand and J. Bitton **Food Market Commentary**, Vol. 5, No. 1, March 1983.)

In most developed countries brands and labels play a key role in merchandising food products. Initially, food processors introduced brands to differentiate their products from those of others, to maintain and expand markets and market share. For a long time, consumers considered brands an indicator of quality. Multinational or national food processors, such as Kraft, Green Giant, General Foods, and Canada Packers have successfully built up and maintained a sizable degree of consumer acceptance or loyalty for the brand name of their products. They have maintained consumer acceptance largely through national media advertising and promotion.

In more recent years, the food labelling and branding domains have been extended to non-processors of food, namely, food distributors, wholesalers, and retailers. Processors of national brands found themselves in competition with private or retailers' brands. Distributors and processors had to deal with a new element of competition, product differentiation. Although initially the primary function of a national brand was to distinguish the products by the name, regardless of its place of origin, the new private labels carried the retailer's or distributor's name to consumers. This was particularly evident when retail chain stores in urban market centres use private brands to promote the image of the retail chain store.

In this article a brief examination of the introduction and subsequent development of generics in Canada and the United States will be offered. The market forces determining adoption of generic labels as well as their implications for consumers and the food trade will be discussed.

Introduction of Generics

Alongside the well established national brands and private brands or labels, a new line of brand choice was introduced in the late 1970s. This new

line, known as generics or no-name labels, represented a series of super-market unbranded products packaged or contained in plain-coloured wrappers, identified by the printed name of the product instead of by a brand name. The most noticeable feature of this line of products was their low prices relative to those of the other two lines available. The introduction and subsequent growth of generic labelling in Canada were initially confined mainly to the province of Ontario. Here, generic sales for 1981 were estimated to be \$450 million or about 5.3 per cent of total retail food-store sales, and 7.1 per cent of chain-store sales.

In Ontario Loblaws and Dominion's Ontario divisions introduced this new line in early 1978. In subsequent years, many other retail food chains, retail cooperatives, and voluntary group stores across the country followed suit. A certain number of major retail outlets were reluctant to follow this move and several of them countered the introduction of generics by extending their private-label line to a second line of private labels. These products resembled generics in every way except for the label, which carried the store's name, and are sometimes referred to as neo-generics.

Development of Generics

An extensive survey of the early growth of generics in Ontario was conducted by Nielsen Company of Canada and reported in 1979. This study examined the progress of 18 generic products over their first year on the market. The basket of products used in the study was divided into three

categories: beverages, edibles, and household items. The market penetration of these categories and the combined shares are presented in Table 1. The initial share of the combined basket was 7.4 per cent, and one year later the combined share of these three categories had a 1.8-fold increase to 13.1 per cent. The market share of household items was the highest at 16.1 per cent, while beverages had a share of 11.1 per cent, and that of edibles 12 per cent. Edibles had the highest growth rate since their introduction, their market share rising from 5.4 to 12 per cent in their first year.

The early effect of this introduction has been an increase in the share of sales of retailer-owned labels, including private brands and generics. The market share of all house brands for the categories where generics were introduced increased immediately following this introduction. Table 2 shows the share of a basket of private labels and generics for the generic items introduced in April 1978. For this basket, the combined market share of the house brands increased from 21.5 per cent during the two-month period before generics were introduced to 28.2 per cent in the two months following the introduction. By the end of their first year on the market, generics had helped increase the market share of house brands for the group of items surveyed by 9.1 percentage points. This gain in market share of retailer-owned and -controlled brands occurred at the expense of national labels.

However, the generics' gain was partly offset by a reduction in the share of private labels. Nielsen's initial report

Table 1. Market penetration of selected baskets of 18 generics in Ontario chains in their first year of introduction, volume share, Ontario¹

Period	Beverages	Edibles	Household Items	Combined
	%			
April-May 1978	6.3	5.4	11.3	7.4
June-July 1978	9.9	7.6	11.5	9.6
Dec.-Jan. 1979	10.1	8.2	13.7	10.7
Feb.-Mar. 1979	11.1	10.4	14.0	11.8
Apr.-May 1979	11.1	12.0	16.1	13.1

¹The items included for each category were as follows: Edibles: salad and cooking oils, rice, ketchup, coffee creamers, prepared mustard, and canned spaghetti. Beverages: tea bags, tomato juice, soft drinks, milk modifiers, regular coffee, instant coffee, and powdered citrus.

Household items: garbage bags, bleaches, fabric softeners, packaged detergents, and liquid detergents.

Source: V. Robbins, *Generic Labels — A Year of History* (A.C. Nielsen Company of Canada)

on the performance of generics in their first year suggests that both private and national labels have been equally affected by the inroads generics have made. In the United States similar conclusions have been reached.

Generics have continued to flourish in the Ontario market. This line of products has continually expanded, and most chains now carry more than 100 generic items.

Merchandising of Generic Labels

Generic merchandising should be considered in the context of other related retailing activities. Through these activities merchants aim to attract consumers to patronize a specific retail outlet by offering them alternative product choice, a unique or unusual shopping experience, with periodic price reductions on specific items commonly known as "specials." Such activities include:

- particular stores establishing volume discount retail outlets that they directly or indirectly own or manage;
- providing automated and speedy check-out counters aimed at reducing waiting time; particularly during heavy shopping hours;
- extending shopping hours at convenience outlets;
- offering a "pick-your-own" selection counter for certain fruits and vegetables and bulk-food items alongside pre-packaged items.

All use of generic labels has been linked with a "low price" image of the food retailer. Generic brands maintain a lower price than corresponding retailer or national brands for essentially comparable products. However, the existence or lack of a noticeable difference in quality between generic and other brands is by and large left to the consumer to determine.

The narrowing of the price differential between the previously introduced private-label and national brands has been cited as an important merchandising factor contributing to the introduction of the lower priced generic products. This differential has decreased from an average of 21 per cent in the early 1970s to only 10 per cent in 1981. During 1981, the price discount for generics is calculated at 20 per cent of the price of the corresponding national label.

Table 2. Combined sales shares of generic and private brands in Ontario chains¹

	Feb.-March 1978	April-May 1978	June-July 1978	April-May 1979
	%			
Beverages	26.1	29.4	33.9	31.7
Edibles	18.9	26.3	27.1	29.7
Household	19.6	28.8	27.6	30.5
Combined categories	21.5	28.2	29.5	30.6

¹Based on a survey of a selected merchandise basket sold before and after the introduction of generic labels during April-May 1978. The combined generic and private labels are also called house brands.

Source: V. Robbins, *Generic Labels — A Year of History* (A.C. Nielsen Company of Canada)

Generics in the United States

Availability of generic products in the U.S. evolved from a regional phenomenon, and generics have become a commonly available line of products across the country. In their first year on the market, generics were available in only 12 per cent of the U.S. supermarkets; five years later, in 1982, approximately 65 per cent of U.S. supermarkets carried generics. This excludes chains carrying neo-generics such as Safeway's Scot Buy and A & P's P & Q. Estimated sales of generic and neo-generic products for 1981 was of \$4.4 billion.

Share for generic, private, and national labels for a group of grocery items is shown in Table 3. This basket represents a group of items comprising 54 per cent of grocery-food generic sales shipped from grocery warehouses to U.S. supermarkets in 1980. Of the items presented, the more accepted groups of generic items consist largely of canned vegetable products, drinks, and spreads. These items were among those with the most popular private labels. By the same token, the least successful private-label products had a very limited appeal as generics. Thus, a correlation between high market share for private-label items and the more successful generic products is obvious from the data presented. These generalizations are likely to apply in the Ontario market as well.

The least successful generics and private labels, in terms of market shares, were for those products whose market power is concentrated in the hands of very few manufacturers. These manufacturers have a very strong image following and continually enhance it through advertising. The

relevant items have a more limited distribution as private labels and, when available, are provided by fringe manufacturers.

Generic Growth in Other Canadian Provinces

In the Maritime provinces and Quebec, generics had little market penetration. Sales for Quebec were estimated to be \$45 million for 1981. This represents less than one per cent of retail sales in the province. During that year, the number of Quebec retailers marketing generics has decreased from that of previous years, due mainly to the departure of Dominion, the only chain committed to generics. Most Quebec retailers consider their first line of private labels to be an adequate substitute for national labels. Hence, in Quebec generics appear sporadically on the shelves of the leading chains, only to be removed shortly thereafter.

In the prairie provinces generics are almost totally absent from all retail chains. Yet they are available in discount shops and co-op stores. On the other hand, neo-generics are available in the largest retail chain of the region, Safeway. A similar situation exists in British Columbia, where the major retailer also carries neo-generics. Most of the smaller chains, however, carry a limited line of generic products.

The limited availability of generics in provinces other than Ontario can be explained by several factors. One of the more important ones is the market structure of their retail food sectors. In Quebec, for example, neither generics nor neo-generics have established a foothold in the retail food sector; this difference between the two provinces has been attributed to the consumer. Some retailers assert that the Quebec

Table 3. Estimated annual share of generic sales, private label sales, and national label sales in the United States, 1980¹

Selected Items	Generic	Private	National
		%	
Canned soup	0.2	8.7	91.9
Ready-to-eat cereal	0.3	2.3	97.4
Blended vegetable juice	0.3	2.1	97.6
Instant coffee	0.4	3.6	96.0
Pudding	0.4	7.0	92.6
Canned pasta dishes	0.6	3.5	95.9
Canned tuna	0.7	14.2	85.1
Confectioners' sugar	0.7	20.2	79.1
Regular coffee	0.7	14.4	84.9
Canned fruit cocktail	1.2	38.6	60.2
Pork and beans	1.2	11.2	87.6
Powdered milk	1.3	25.7	73.0
Granulated sugar	1.5	48.4	50.1
Dried rice	1.5	16.2	82.3
Tomato juice	1.6	23.0	75.4
Prepared mustard	2.0	13.5	84.5
Mayonnaise	2.0	13.0	85.0
Maple syrup	2.2	8.8	89.0
Cooking and salad oils	2.5	14.0	83.5
Canned carrots	2.6	41.6	55.8
Canned beets	2.8	44.8	52.4
Tomato sauce	2.9	26.1	71.0
Relishes	2.9	24.0	73.1
Soft drinks	3.0	56.9	40.1
Canned peas	3.1	35.4	61.4
Ketchup	3.0	16.1	80.9
Canned corn	3.2	35.4	61.4
Italian food sauces	3.4	5.6	91.0
Canned tomatoes	3.5	40.3	56.2
Apple sauce	3.6	35.6	60.8
Crackers	3.6	29.5	66.9
Peanut butter	3.6	21.3	75.1
Canned waxed beans	3.7	56.6	39.7
Tea bags	3.8	14.4	81.8
Apple juice	4.1	24.1	71.8
Canned peaches	4.5	41.2	54.3
Canned pears	4.9	45.7	49.4
Jam, jellies, and preserves	5.6	24.0	70.4
Coffee creamers	6.2	25.8	68.0

Shares are derived from shipments of food operators' warehouses surveyed by Selling Areas Marketing Inc. (SAMI). They, therefore, do not constitute a complete estimate of generic sales.
Source: SAMI

Table 4. Estimated number of food retail stores in Quebec and Ontario, and share of total food sales, by store type, 1978

Store Type	Quebec		Ontario	
	Store Number	Share of Sales	Store Number	Share of Sales
	Number	%	Number	%
Major food stores				
Chain supermarkets	294	43.5	704	73.7
Chain convenience stores	361		1275	
Voluntary groups	3650	40.4	1597	16.8
Affiliated independents (estimate)	6852	16.1	4774	9.5

Source: *Canadian Grocer*, February 1979 and Statistics Canada, *Retail Trade*, Catalogue No. 63-005

Consumer is brand loyal and quality conscious, while the Ontario consumer is more price oriented. While there may be a difference in the characteristics of consumers, the disparity in the evolution of generics in the two provinces suggests that market structure and subsequent mer-

chandising practices by retailers play a primary role in determining whether generics will be introduced and grow in a specific market.

Market Structure of Quebec and Ontario Retail Sectors

When generics were introduced in

Quebec and Ontario in 1978, there were 4,305 food stores in Quebec and 3,576 in Ontario. The breakdown of those stores by affiliation group and the sales by groups are shown in Table 4. One major structural difference between the two provinces is the share of sales by chains and voluntary groups. In Quebec, voluntary group stores accounted for 40.5 per cent of all retail sales; this compares with 17.2 per cent in Ontario. On the other hand, corporate chain store sales accounted for 42.4 per cent of food-store sales in Quebec and 73.1 per cent in Ontario. This difference partly explains the occurrence of differing merchandising practices in the two provinces.

A second form of structural difference is the control of total retail food sales by the larger organizations in the two provinces. In Quebec the estimated market share of the top four firms was 65.5 per cent compared with 56 per cent in Ontario. Furthermore, remaining food sales in Quebec were accounted for by smaller retail firms and many independent stores, while in Ontario a number of major organizations accounted for the remaining share of sales. Using concentration as a measure of market power, it can be argued that since in Quebec market power is restricted to fewer firms than in Ontario, Quebec's top four are the more powerful.

Structural differences can also be measured in terms of number of stores owned by a corporate organization in each market. For example, there were seven organizations owning 20 or more stores in Ontario and only three in Quebec during 1978 (in 1981, there were nine organizations in Ontario with over 20 stores and two in Quebec).

The estimated average sales per corporate-owned supermarket also differed. In Quebec the average sales rate per chain supermarket was \$6.4 million. This compared with \$5.9 million for Ontario. The difference is explained by the smaller number of supermarket stores per capita in Quebec. These stores turn over a larger volume than those in Ontario.

This shows that structural characteristics of food retailing in Ontario, as distinct from those in Quebec, have led to a greater incidence of innovative activities and merchandising practices. For example, retailer coupon distribution, warehouse store development, and promotion of

generics have had a tendency to occur more in Ontario than in Quebec. The impact of the price special has been more widespread in Ontario, causing frequent "price wars."

The availability and presentation of generics in the store also affects their performance. They are different in Ontario than in Quebec. The number of generic products available in Ontario's retail stores varies from one chain to another and ranges between 100 to 450 items. Not all stores carry their full line of generics, and seasonal unavailability and regional discrepancies in demand affect the real number of generics available in a specific store.

Another area of difference between the two provinces is the shelf space allocated to generics. Verification in Toronto, Ottawa, and Montreal in 1981 indicated that shelf space allocation for participating stores in cities in Ontario represented an estimated eight per cent of total shelf space, excluding meat and fresh product space not being considered. In Montreal stores shelf space accounted for between 0.5 to two per cent of grocery-product space allocation.

A final aspect to consider in analyzing the marketing of generics is the retailer's efforts to raise consumers' awareness levels of generics. In Ontario generics benefited from important media coverage, a high reallocation of retailers' advertising budgets to promote generics, and a high level of participation of all retailers in promoting the products. In Quebec very little promotional activity occurred when generics were launched.

Implications for the Food Trade

Up to the present time the introduction and adoption of generic food products have been largely sponsored by chain food retailers. The objective is to attract a wide spectrum of consumers residing in urban areas. The appeal of low price generic food, however, would often be among low income and/or selective consumers with a limited food budget. Food processors, on the other hand, have been reluctant to introduce or expand the production and promotion of generic foods. This obviously can be explained by the uncertainty associated with the marketability of generic products offered alongside their own national brands. It is

assumed that generic food products would ultimately be used as a substitute for branded products. If this is the case, the introduction of generic foods by processors would be self defeating in terms of the image and market acceptance of branded products. Consumer's loyalty for a specific brand is one of the most effective bargaining tools remaining in the hands of food processors.

Historically, processors of branded food products do have a considerable vested interest in their own brand. A sizable amount of advertising and promotional outlays have been devoted to maintain the image of branded food products. Differentiated food products by name brands have also attained a perceived or real quality distinction which is often paid for by consumers in a form of a price premium over unnamed or less known products.

Despite these seemingly profitable attractions for processors to produce and market only branded products, market expansion for processed food products is not necessarily for highly priced branded products. Generic, or unbranded food products, can be introduced and marketed domestically and on a world-wide basis with little or no promotional activities. Generic food items, offered at a steady and low price, in comparison to branded products are most economically appealing for low income consumers in Canada as well as those in potential importing countries. Export market potential for low priced generic food should be particularly promising among low and medium income developing countries. Export demand for processed food is evident for canned and less perishable food products such as vegetables, fruits, juices, bakery products, and breakfast cereals. Processors of those food items have the potential and the capacity to expand sales of generic food products into these export markets. Cost reduction in the production and processing of generic products can be achieved via more efficient capacity utilization of the existing plants, less fancy packaging of products and less rigid product differentiation (e.g. size and colour). Consequently, generic products can be offered in export market at competitive prices to complement branded products which can also be offered for more selective and/or high income consumers.

Concluding Remarks

The introduction and subsequent adoption of a generic line of products is a recent development in Canadian food retailing. However, generic products sales are confined mainly to Ontario's market with other provinces, mainly Quebec, sporadically adopting a limited number of generic items. This line of products is available in most U.S. cities and is more extensive there.

Introducing a product or a line of products with no label other than its generic identity is usually a form of food retailers' market competition. Generics are associated with the sponsoring retail store offering and shelving them at its retail outlets alongside other branded products. Generics are usually not offered at independent or local convenience stores.

The most distinguishing feature of a generic product, normally advertised and promoted by the sponsoring retailer, is its low price image. Retailers advertise their generic products as the least expensive line of products compared with corresponding national or private brands. Hence, generics provide retailers an effective means of price competition among substitute products, which may or may not be of comparable quality.

Although the relationship between price and quality of generic products offered in Canadian retail outlets remains inconclusive, the final verdict is usually left to the individual consumer. This process is obviously subject to trial and error, particularly if quality control measures of generics are less stringent than those for branded products. Regularly updated testing and sensory evaluation of generic products is required for better guidelines on quality determination.

Thus a possible explanation for the price discount at which generic products are sold may lie in consumers' perception of their quality differential.

Despite the limited penetration of generic products in Canadian retail food outlets, their adoption by an increasing number of retailers will most likely continue. Generic food products can be introduced competitively as a vehicle to expand Canadian food exports to developing countries. A least-price concept for a uniform but unbranded product is an attractive idea for most consumers and particularly those with a limited food budget.

CANAGREX Means it's Time to THINK Export

by Professor H.G. Coffin
Department of Agricultural
Economics

In January 1984 a new federal crown corporation known as CANAGREX became operational to "promote, facilitate, and engage in the export of agricultural and food products from Canada." The creation of this agency was the culmination of an initiative taken several years earlier by a group of farmers who succeeded in getting the Canadian Federation of Agriculture to recommend this course of action to the federal government. The Minister of Agriculture, the Hon. E.F. Whelan, responded by first issuing a discussion paper on the subject in February 1981 and later introducing legislation which was eventually passed by Parliament on June 13, 1983.

A review of the entire process would reveal that this concept of an export agency has had a long and difficult gestation and birth and has been rigorously debated both inside and outside of Parliament for at least six years before finally being established. This being the case, it is appropriate to ask why this course of action was taken in the first place, and what Canadian farmers and agribusiness firms can expect from it. First, however, we'll take a brief look at our recent trade performance and the strengths and weaknesses in Canadian agricultural trade.

Agricultural Trade

At first glance, Canada has an impressive agricultural trade performance. The value of our exports has grown from \$3.0 billion to \$9.3 billion over the past 10 years (1973-82). This growth in export value has continued to surpass the growth in the value of imports so that we enjoy a healthy trade surplus in agriculture and food (Figure 1). In fact, our agricultural trade surplus represented 30 per cent of our total trade surplus in 1982. In total, the value of all agriculture and food exports is equivalent to nearly half the farm cash receipts for the raw products and is even more important for certain grains and oilseeds (Table 1). Closer examination suggests that our agricultural trade performance has

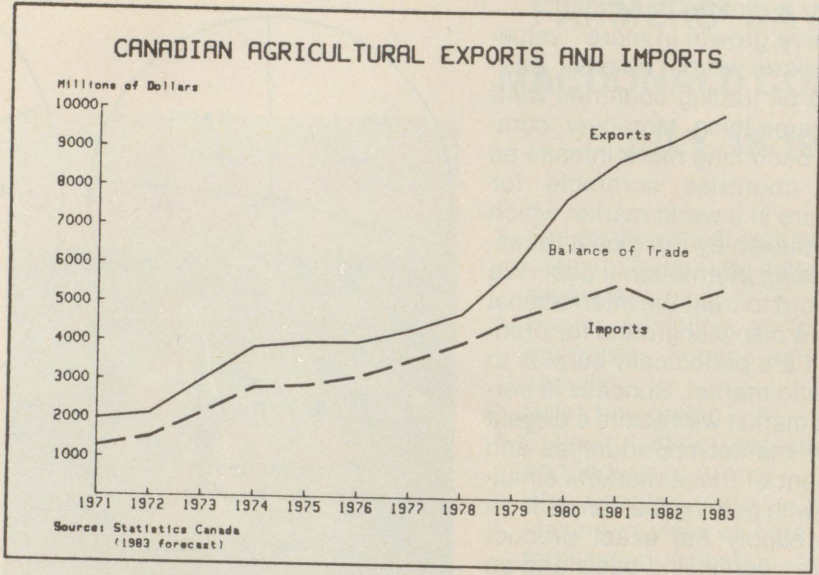


Figure 1.

not been as strong as first appears. More than two-thirds of the growth in total value of our exports over the past decade has been due to higher prices rather than volume. The growth in volume (tonnage) exports, while still encouraging, has only been about 60 per cent over the past 10 years compared to the threefold increase in export value. This growth in **both** volume and value has been aided by a weaker Canadian dollar in relation to our main trading partner, the United States, more than by own initiatives. In the past two years our exports of pork to Japan, another major trading partner, have also been helped by the restriction of pork exports from Denmark due to an outbreak of foot and mouth disease in that country. Although our

government supported the U.S. embargo on grain trade with Russia in 1980, it is likely that our exports ultimately benefited from that U.S. action as well. These and other developments suggest that our success in trade has come, at least partly, from the actions of others as much as through our own efforts.

Credit must be given to several industry groups who have taken their own initiatives and developed strong export markets for their products. Among these are the Canola (Rapeseed) industry, the meat packers who have developed markets for pork, the Ontario White Bean Producers Marketing Board, and various livestock breed associations. There are also a number of individual companies which

Table 1. **Canada's top ten agricultural export items and relation to farm value, 1982**

	Export Volume (000 tonnes)	Export Value (\$ million)	Farm Cash Receipts (\$ million)	Exports as % of Farm value
Wheat	19,200	4,285	4,029	106
Barley	5,721	886	943	94
Pork	158	483	1,727	28
Canola (Rapeseed)	1,296	419	594	71
Live Cattle (000 head)	505	238	3,591	11
Beef & Veal	61	158		
Skim Milk Powder	119	143	—	
Flaxseed	414	137	110	125
Tobacco	2,277	114	390	29
Corn	715	113	413	27
Total — Top Ten	—	6,976		
— All Agr.	—	9,306	19,043	49

Source: Agriculture Canada, *Agricultural Trade Facts*, 1982.

have developed successful export businesses based in agriculture. These initiatives are an important part of the total effort, but more is needed.

To achieve growth in more "value-added" exports will not be easy, partly because all trading countries want to do the same thing. Moreover, competition is becoming more intense as exporting countries scramble for market share in a world market which has been shaken by the global recession and rising international debt. We cannot afford to treat the international market as a disposal ground for products which are periodically surplus to the domestic market. Success in servicing that market will require a diligent search for market opportunities and development of these markets simultaneously with gearing the domestic industry to supply the exact product needed on a continuing basis and on terms acceptable to both parties. This calls for a more thoroughly coordinated effort than we have had in the past, and this will be the task of CANAGREX. How will it achieve this task?

The Role of CANAGREX

At the time of writing, there has been no indication from CANAGREX as to its direction, emphasis, and initial activities. The agency, under the direction of Mr. Ed. Story, as President, and an 11-member Board of Directors¹ chaired by Mr. Glen Flaten, President of the Canadian Federation of Agriculture, is still carrying out consultations, formulating strategy, and getting its staff in place. It can be expected to take a low profile for some time yet so as not to raise expectations beyond the point where they can be fulfilled. A look at the powers available to it in the Act suggests, however, that it can a) undertake market identification and intelligence, b) provide promotion and information services, c) provide loans and guarantees, d) participate in joint ventures, and e) help develop infrastructure and facilities. In theory, at least, CANAGREX also has the power to get directly involved in exporting through the purchase and resale of products other than those already under the jurisdiction of the Canadian Wheat Board and the Canadian Dairy Commission. These two categories account for more than 60 per cent of our current exports of

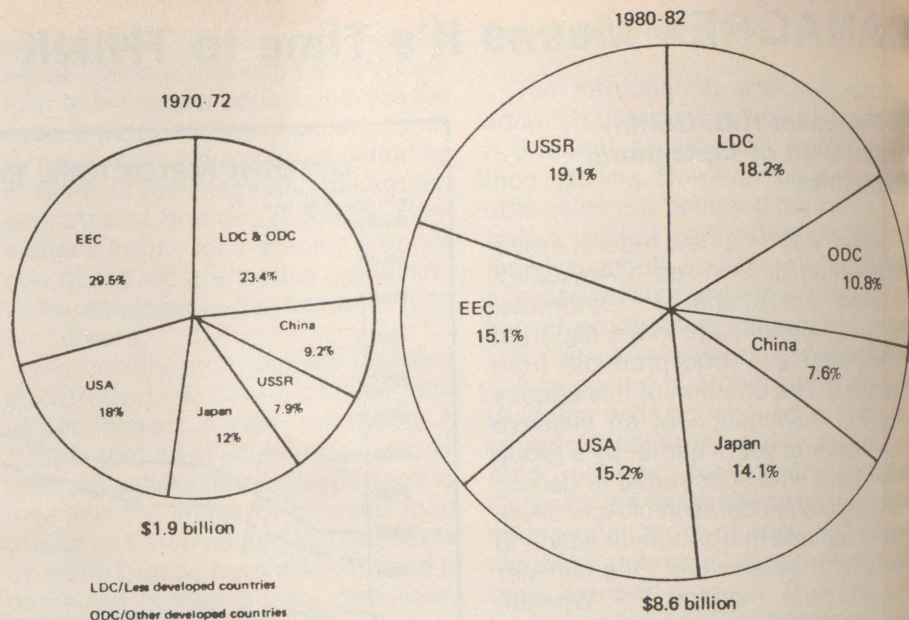


Figure 2. Destination of Canada's agricultural exports in percentages 1970-72 (average) and 1980-82 (average).

agriculture and food products, leaving about one third open.

Even with these powers, fulfillment of its task will be a difficult challenge for CANAGREX. Despite the experience and expertise of its leaders and staff, the agency will be starting out in the field of export promotion and market development where other countries hold a certain edge from having been there already. They will also be working with a smaller budget than originally expected at \$12.3 million over a three-year period. That's not much in the big leagues of export market development. Moreover, the agency will not have freedom to make full use of its power pertaining to the buying and selling of products. In his statement announcing passage of the legislation in June 1983, the Minister of Agriculture, the Hon. E.F. Whelan, declares:

"We have made it clear that CANAGREX will only engage in trade when it is selling on a state-to-state basis, or in co-operation with or jointly with Canadian firms, marketing boards or co-operatives."²

This concession to the critics of the CANAGREX initiative means that it is not only under pressure to produce results quickly, but to do so with less than full use of both hands.

The agency is also under close public scrutiny in the longer term. It will be required to operate from a rolling, three-year corporate plan, tabled in Parliament each year, identifying pro-

duct and market emphasis; it will be subject to an annual audit by the Auditor General's office; after five years, there will be a full performance review of CANAGREX by the House of Commons Standing Committee on Agriculture.

There is an important role and contribution to be made by CANAGREX in helping the agriculture and food industry to grow beyond a relatively saturated and slow-growing domestic market. This will eventually be of benefit to both the farm sector and agribusiness. But the agency must be given a reasonable opportunity to become effective in terms of the level of expectations held out for it. There must also be a fair measure of support and co-operation for the basic thrust which this action represents. The real meaning of CANAGREX for the agriculture and food industry is that it is time to **THINK** export. This is an essential first step in the process. Besides whatever success we are able to achieve in the international market, this orientation should improve our performance within our own domestic market.

¹Quebec agriculture is represented on the Board of Directors by Mr. Pierre Leonard, Managing-Secretary of the Holstein Friesian Association of Canada and former president of l'Ordre des Agronomes du Québec, and on the Policy Advisory Committee by Mr. Paul-Emile St. Pierre, President of Co-op Fédérée, and J.D. Côté of La Cidrerie Ltée.

²Agriculture Canada, "CANAGREX Passed By Parliament," Press Release, Ottawa, June 30/83.

FARMERS' DAYS AT MACDONALD

By Henry Garino
Department of Animal Science
and Macdonald Extension Service

Extension has been aptly defined as education in agriculture through information. This most challenging task can and should be handled in many different ways. I remember when I was a freshman here at Mac the campus used to swell with visitors attracted by many activities: conferences, field days, workshops, and the like. In the last decade, however, annual events such as field days were phased out in favour of other events. A few of us in the "new look" extension program like the idea of mixing things up. No doubt we can be very effective in bringing or sending you information about our work and the work of other colleagues in agriculture, but there is nothing like showing it to you, on site, to drive the point home.

Planning for 1984

Last year we decided to try again to bring the farming community to the College with a two-day Farmers' Days event in late August. Most of the departments participated in setting up tours, displays, and demonstrations of the facilities and projects in which they were involved. Cooperation was great, the weather was great, but we did not get as many visitors as we had hoped for. We weren't discouraged, however, and we got off to an early start back in November planning for the 1984 Farmers' Days events. Farmers, farm organizations, government extension personnel and others were contacted to determine this year's program from the standpoint of topics for demonstrations, suitable dates, and overall structure.

We are quite pleased with the cooperation shown by all these people. The dates have been set for July 18 and 19 (when there's supposedly nothing to do out on the farm! Right?) The list of project demonstrations that we feel are of particular interest are shown on this page.

We believe that we have chosen a good selection of demonstrations and hope that they may have something for you to take back to the farm. Hope to see you here at Macdonald in July.



Henry Garino

Macdonald Extension Co-ordinators

The announcement on this page of the up-coming Farmers' Days to be held at Macdonald in July offers an excellent opportunity to explain briefly the committees and the men who go to make up the new Macdonald Extension Service. There are four committees each with a Co-ordinator. These Co-ordinators, together with the Director, Marcel J. Couture (Macdonald Journal, February, 1984), and the Associate Dean of Student Affairs and Public Relations, Dr. Jean David, and the Dean and Vice Principal of Macdonald, Dr. L.E. Lloyd, make up the Macdonald Extension Service Policy Committee.

Dr. David Bird, Director of the Macdonald Raptor Research Centre and a member of the Department of Renewable Resources, is the Co-ordinator of the General Community Relations Committee. He received his B.Sc. from the University of Guelph and his Masters in Wildlife Biology from Macdonald in 1976. David Bird and his committee are taking a particular interest in the College's relations with agribusiness and the alumni, as well as in maintaining and enlarging the role of publicity through newspapers, radio, and television.

FARMERS' DAYS AT MACDONALD COLLEGE, JULY 18-19

- * The economics of high moisture ear corn utilization in dairy and beef programs
- * Proper sampling of forages and economic implications of poor sampling
- * Solar hay drying
- * Cultivar testing (cereals, forages, and industrial crops)
- * Weed control (corn — nutsedge)
- * Maximum yield of corn related to fertilization, irrigation, and population density
- * Soil compaction and drainage
- * Many more

Co-ordinator of the Rural Extension Service Committee, Henry Garino has been in the Department of Animal Science since 1976 and received his B.Sc. and his M.Sc. at Macdonald. Long interested in extension work, Henry Garino's committee will be working closely with rural organizations and producer groups both on campus and out in the community.

Serge Lussier, Co-ordinator of the Publications Committee, is on staff in the Department of Plant Science. A B.Sc. graduate from Macdonald in 1974, Mr. Lussier and his committee are responsible, among other things, for the publication of the Macdonald Journal, for relations with AGREM, an association of some 15 newspapers in Quebec whose central office is located at Macdonald.

Registrar Steve Olive, who received his B.Sc. at Macdonald in 1968, is the Co-ordinator for the Student Recruitment Committee. Mr. Olive heads a long list of Macdonald staff who are particularly interested in visiting high schools and CEGEPS as well as in welcoming groups of young people who come to Macdonald for organized tours and for information on the degree and diploma programs available.

Hydroponics International

by **Professor K.A. Stewart**
Department of Plant Science

They have been called "money bags" for they are revolutionizing profits for tomato and cucumber growers in the United States and Canada. Each plastic grow bag contains 42 L of fertilized peat or a peat/vermiculite/perlite mix and can support the growth of three plants (Figure 1). The limited root zone provided by the bags means that frequent watering is required. Normally, a drip system is employed which also allows the producer to use soluble fertilizers. Yields from grow bags are routinely greater than their conventional counterparts (Figure 2) and currently 25 per cent of United Kingdom greenhouse tomato production is in peat bags.

One of the major advantages of this system is its ease of handling. In Europe there is extensive home use of these bags where both balcony and patio gardeners are finding this the perfect no fuss no mess system.

The student seen working with the grow bag is Mr. Adolfo Minero-Amador an M.Sc. student from Mexico. Adolfo graduated with a B.Sc. from the Metropolitan Autonomous University in Mexico City in 1980. He then worked at the Ministry of Agriculture for a period of three years in the Economics/Horticulture division as a project evaluator, analyst, and farm manager. During this period he increased his horticultural skills by attending a number of short courses in Mexico and a Crop Production course in the International School of Economic Development Studies at Colorado State University.

Adolfo's work at Macdonald involves use of seed treatments and fluid sowing to improve the establishment of tomatoes for both greenhouse and field production. This work has important implications for Mexico where current crop production techniques are uneconomic. Upon completion of his M.Sc., Adolfo will return to the Ministry of Agriculture for work in the National Hydraulic Plan.

Another popular form of hydroponics is the Nutrient Film Technique or NFT. This involves a continually recirculating nutrient system with no



Figure 1. Young tomato plants in grow bags.

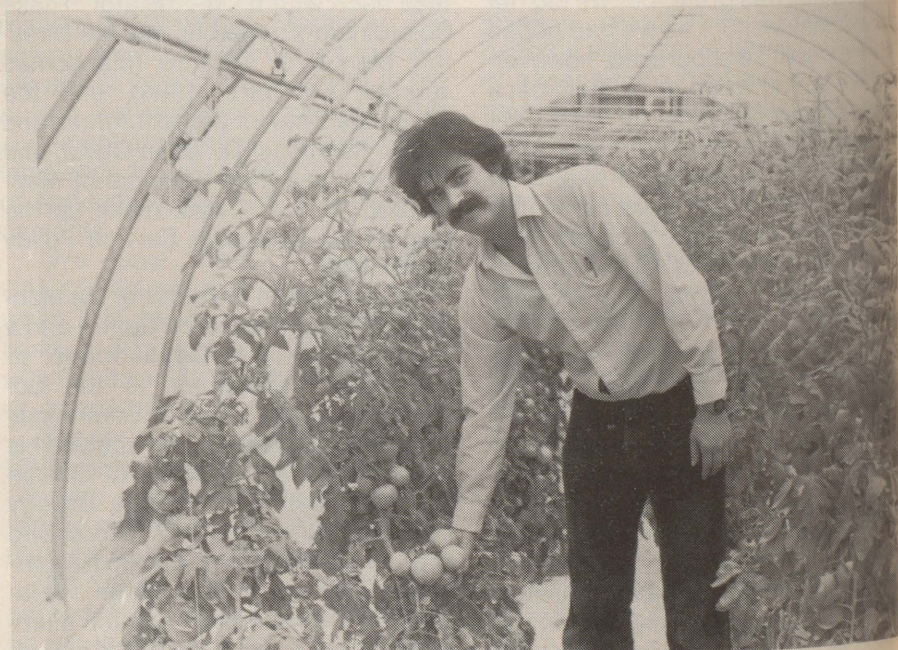


Figure 2. Plant Science graduate student Adolfo Minero-Amador with a tomato crop produced using grow bags.

substrate. Plants are seeded into inert blocks and placed in troughs or gullies. A wide range of plants can be grown using this system. Here at the College we specialize in fine herbs (Figure 3) and lettuce production (Figure 4). Plants produced by this method are healthy with a quality equal to or better than produced from conventional growing techniques.

Two international students are involved with the NFT project. Simon Bedasie, a citizen of the Republic of Trinidad and Tobago is a graduate student in the Department of Plant Science. Simon, currently working toward his M.Sc. degree, graduated from the University of the West Indies in 1974. He then served as a County Agricultural Officer, and it is from that position that he has been given study leave for his work at Macdonald.

Trinidad and Tobago have a limited land area, much of which is not suitable for agriculture. Therefore, hydroponics is a perfect solution to increase vegetable production on marginal land. Simon also hopes to establish his own hydroponic vegetable farm on his return to the tropics. Simon, his wife, and two children are adapting to Macdonald — although it lacks the sunny climes of the Caribbean.

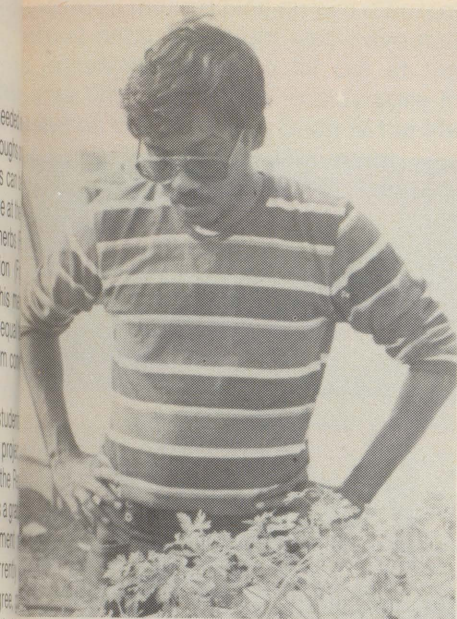


Figure 3. Simon Bedasie, Plant Science graduate student, inspecting parsley grown using NFT.

Another international student interested in hydroponics is David Wees. David, an American, is currently finishing his B.Sc. at Macdonald and is expected to start his M.Sc. in the



NFT-grown lettuce in the plastic houses at Macdonald. Students, right to left, are David Wees, Ronald Mongeau, and Simon Bedasie.

Department of Plant Science in May 1984. David's interest in hydroponics led him to work in this area last summer when he held an NSERC summer scholarship. During the course of his

studies, David hopes to spend time in France as part of the France/Québec exchange program for graduate students.

(Continued from Page 29)

matter in the local diet was responsible for some nutritional problems.

The cooperative store decided to bring in salt to trade for grain at the end of the growing season. This grain is being stored until members need it later, at which time it will be sold back to them. Plans were made to build a proper building with a grain storage facility. Farmers in neighbouring districts are interested in setting up similar cooperative stores. The seed multiplication work means that quantities of the new varieties, with which the farmers have been pleased, will be available at the beginning of the growing season, rather than later, as has been the case in the past. The demonstration work went well, generating a lot of interest and participation among farmers, and participating farmers had good results. The results of the fruit and vegetable experiments were mixed. Those grown in a shade house or under trees in house compounds did well; those in the open were, with a few exceptions, adversely affected by the intensity of the direct sun.

In a report at the end of his two-year

assignment, Doug Johnson wrote "I will not attempt to answer the question 'does self-help really work?' because I don't think there is a clear cut 'yes' or 'no'. It really depends on the definition of self-help and how much flexibility one gives projects or a whole program that is dealing with real people in a real-life situation." He ended his section of recommendations and conclusions with "The ACCOMPLISH Program is a very worth-while project. For those involved in it, it is a major challenge that cannot be ignored. Even after all my frustrations I can reflect back and draw a lot of satisfaction from the experience. I can honestly encourage others to get involved and to support the ACCOMPLISH organization."

Another Macdonald graduate, Ed Hugh, B.Sc. (Agr.) '44, had a vast range of experience to offer when he applied to CUSO several years ago. With a background in dairy and poultry husbandry and animal breeding, he had worked as consultant and advisor to development programs in the South Pacific and the Bahamas before joining CUSO.

Ed was posted to Papua New Guinea to work as area livestock of-

ficer for the national government. He worked as a government consultant, encouraging coconut plantation owners to graze cattle under the palms to make better use of the land and ultimately cut down on beef imports from Australia and New Zealand. He also encouraged the farmers to improve the management of their herds and vegetation. A type of vegetation had to be found which would not grow too tall to hide the coconuts when they fell from the trees but which would provide good nutrition for the cattle. Ed also encouraged the growing of legumes with the grass to increase the nutrient value.

Ed Hugh also gave advice on poultry and cattle production at a local vocational school and worked with the provincial livestock officer in solving poultry production problems.

Like all CUSO workers, Ed was trying to work himself out of a job during his two-year contract by training a local counterpart to take over when he left. He says he would recommend the CUSO experience. "I think any man or woman would benefit immensely from experiencing another culture. The environment in a developing country is so different."

DIPLOMA

C by Jim Currie
Assistant Director,
O Farm Practice
Diploma in Agriculture Program

R Free enterprise is alive and well
N in Canada! At least it is out West
E in the land of the blue-eyed
R sheiks, Stetson hats, and
Hereford cattle.

The theme of this issue of the Macdonald Journal is international; therefore, this roving reporter decided to take some time from a well-earned (in his opinion) holiday in Alberta to talk to a Diploma graduate. Although he is not out of the country, he has left Macdonald far, far behind. One of the effects of coming to Macdonald is usually a broadening of horizons, and this may be even more true for a program where students are primarily from Quebec farms. In this particular case, however, the student was well travelled and experienced when he got here and, after graduating in 1966, Richard (Duke) Schulz again travelled, took up a career, and became a success in a lifestyle that is somewhat reminiscent of the Old West. He and his partner Ralph Pierson are cattle buyers.

Getting to see Duke was an experience in itself. Through a stroke of luck, I was able to reach him at his office in Edmonton. Usually, he is off at one sale or another, somewhere west of Saskatoon. As luck would have it, he was able to talk to me the next day while at a sale. With a map of Alberta in hand and a brief description of Duke Schulz in my head, I set off for Clyde, Alberta. It's on the map, about 40 miles due north of Edmonton. Little did I know that I would be visiting one of the newest livestock auction markets in North America.

Modern Livestock Exchange is featured in an article by Terry Hockaday, in the November 1983 *Cattlemen* magazine. In that story, Modern is described as "probably Canada's largest independently owned auction market." In November 1982 fire destroyed the old facility but in less than one year the market was back in full business and was almost twice as



Richard (Duke) Schulz on the steps of the Modern Livestock Exchange in Clyde, Alberta.

big. It is impressive — right from the brick, wood shingles, and glass front entrance, to the padded gallery seats for the buyers and audience. The two sales rings are full-size scale platforms with a large digital printer indicating number of head, total weight, and average weight for the animals in the ring. On a second line of the digital printout, is shown the price per hundredweight, weight, and number of head in the last lot. According to the *Cattlemen's* article, the scale is hooked up to a mini-computer that types cheques automatically. Theoretically, a farmer should be able to watch his cattle being sold, run to the office, and have his cheque waiting for him.

The market has a sales capacity of about 250,000 head per year, with holding space for up to 12,000 head at a time. Inside the arena, the three or more auctioneers rotate from ring to ring to rest break and sell 350 to 400 head per hour.

How can a place get rid of this many cattle in a hurry and still get a good price? The market owners aim to attract the buyers which will, in turn, attract the sellers. To do this, they have arranged to hook up via computer to buyers in Ontario and have tried video sales via satellite transmission. At a

more personal level, they have hired a full-time pilot to chauffeur buyers from other sales to Clyde and then home again if necessary. This makes for competitive bidding which gives the seller the best possible prices, and that keeps them coming back.

One of these buyers is Duke Schulz (Dip '66). He told me that I'd be able to identify him by his grey ski jacket and white Stetson hat. Luckily, there weren't too many people at ringside since half the population of Alberta wears white Stetson hats. After checking out the audience for a moment, I centred on a lean looking fellow with a nervous twitch to his hand who was standing at ringside. I knew it had to be Duke, because every time his hand twitched the price of cattle in the ring went up another half cent. I decided right then and there that this was no place to be nervous.

After introductions, I suggested that I'd wait for a break to talk to him if he preferred. He assured me that there was no problem since this was a slow day with only four or five hundred head being sold, and he could talk and bid at the same time. Things would have been different if it was in the fall when both rings were going full blast. Then he stays at floor level, running back

and forth, making bids on two different lots at once. He might also have half a dozen contracts to fill out at the same time, so he has to stay agile in mind as well as body. Such is the life of a livestock purchasing agent.

But what is a "livestock purchasing agent?" According to Duke's description, it's someone who buys cattle to fill contracts with packing companies, feedlots, or farmers. About half of his orders are with a company called Lakeside Packers and Feedlots, while the majority of the other half are in Alberta. Sometimes he will get an order from outside the province. Rarely, he'll get an order for purebred or breeding stock, and he finds these harder to fill since it's a whole different selection criteria that he uses. He's much more comfortable estimating to the nearest one half per cent the cutability of a carcass than the breeding capability or pedigree.

Amazingly enough, contracts are usually arranged by telephone. There might be hundreds of thousands of dollars involved in a telephone transaction. Such is the trust in the farming community, but a new buyer is always checked out thoroughly before a contract is accepted. Trust is developed until only the phone call is necessary. Duke feels that honesty has worked so far, since he hasn't been stuck with a contract yet; however, there have been times when he's had to be lenient on how fast he collects from the buyer. This happens, especially in tight financial times like the present, when a feedlot operator may be waiting for a cheque for cattle that he has just shipped to pay for cattle that he has just bought. When this sort of thing happens, Duke has to depend on a good understanding with the bank to carry him through. Here again, trust and confidence play a large part. He had to start with a small line of credit and prove that he was trustworthy. He says that he can now depend on up to a half million dollars of backing without much trouble. He carries this line of credit since, technically, he owns the cattle since he has bid them in. He must pay the seller immediately, then collect on his order when he delivers the cattle to the contractor. His profit comes from a margin that he charges for trucking, insurance, and his service. At present, he charges between \$2 and 2.25 per hundredweight over his purchasing price. Of that he, or his agen-

cy, takes about 60 cents per hundredweight commission. In other words, if a feedlot owner wants a shipment of steers costing less than 85 cents per pound, then Duke knows that he can't offer more than 83 cents per pound as a bid at the auction.

Bids at an auction like this (especially for fat cattle) are generally set by certain factors, such as prices in Toronto or the United States. Often there is a sealed bid entered with the auctioneer; therefore, the buyers are competing against each other plus an unknown. Each buyer is also restricted by his contract in which there may be limits on price bid, guidelines for quality, sometimes even limitations on the breeds of cattle that are acceptable to a certain contractor.

Generally speaking, contracts are filled at major auctions. Duke will attend one while his partner, Ralph Pierson, will cover another, trying to fill particular orders. Once in a while, they will end up with more cattle than they need for that order, but usually the packer will either accept them or put the excess toward a future order. Occasionally, they may go directly to a farmer if they are sure of the quality and if there are enough cattle on offer to justify the trip.

The Road to Edmonton

How did Duke Schulz get from Macdonald College to Edmonton, Alberta, to become a cattle buyer? He had worked in western Canada on two other occasions before starting at Macdonald. Both times he was a working cowboy, riding fences and herding cattle. The first time was at the V Bar V ranch in Alberta, the second time was at the Quilchena ranch in B.C., so he was no stranger to the West. According to Duke, there was a period of 14 years of practice. Before he finished the Diploma, he had interviews with Canada Packers and accepted a job as a cattle buying trainee. When he graduated, they sent him out to Moose Jaw, Saskatchewan, for three years of training. He was then transferred to Medicine Hat to buy in that area. After three years there, he was sent back to Moose Jaw, as head buyer for that district. He stayed there for eight years, then was offered the position as head of the Edmonton area. Around 1980 he and Ralph Pierson decided to go independent. His practical experience with Canada Packers would

serve him well. He had seen the direction in which the industry was heading and knew it was time for a change. Much of the fat cattle market for slaughter was dwindling. There was, and continues to be, an increase in the amount of direct sales to packers with a price set on the railgrade. By going independent, he was able to take orders to fill feedlots, as well as buy for smaller packers. Duke feels that these four years have been very successful and sees a bright future. However, that future will be based, more and more, on feeder cattle. This will make it much more difficult for a young person to get into the business since they will not have the same chance at the type of training he had.

His years at Macdonald as a Diploma student helped him primarily as an "in" to Canada Packers. Once he accepted the job that they offered, they supplied the training. This, of course, is true of most jobs for inexperienced graduates. They start off with a general knowledge and become more specialized to meet the needs of the job that they accept.

The story of how Duke became a Dip student, however, is intriguing. It's not very often that we get a student from the wilds of Arizona, U.S.A. Duke had started an agriculture program at the University of Arizona, in Phoenix, but as he had just married that year, expenses were too high to keep going there. He had a job as a crop duster but this cut into his study time, and he couldn't afford that either. His father was working out of Montreal so in a round-about way he heard of Macdonald. Eventually, he and his wife decided to try our side of the border and moved to Hudson, where Duke managed the Jacobsen horse farm for a couple of years before enrolling in the Diploma Program. He kept working while he took courses so he was given a house and, since living expenses were less here than in Phoenix, he was able to make it through without further problems. A classmate of his, Norm Campbell, who is the manager of DHAS at Macdonald, has some very vivid memories of Duke Schulz. The first thing that he said when I asked him about Duke was, "Strong as an OX! Damn good job he was good natured or he would have been dangerous." All this from a man who is well over six feet and not a lightweight. He was very well liked by

his classmates and, according to Norm, he was very loyal to the rest of the class. Since Duke and his wife lived off-campus, he was not as available for the social events which probably kept him out of a lot of escapades that his classmates enjoyed.

Like many strong people he is quietly self confident. Since his college days he has used that self confidence to establish himself in a very hectic career. He is a professional, good at what he does, and lucky enough or smart enough to be able to do what he is good at. He has bought an acreage just outside of Edmonton, where he and his wife, Gini, can enjoy the western country, and where his three

children can come and visit. From this home base he can easily get out to the foothills country to indulge in his favourite hobbies of camping, fishing, and canoeing. Whenever he can, he tries to stretch his weekends to three days which is, of course, one of the benefits of being the boss.

Duke Schulz is an interesting person and I wish I had had more time to spend with him, especially since he invited me to the traditional buffalo burger lunch that they serve in the restaurant at the Modern Livestock Exchange. Unfortunately, buses don't wait for buffalo burgers, so I had to abstain and bid farewell to the Duke and leave the prattle of the auctioneers

to head for Calgary. By the way, does anyone want to buy 12 head of Hereford heifers acquired at a good price when my nose got itchy?

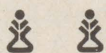
Other Dips in Foreign Lands — we've heard from two recent Dip graduates who are with CUSO: David Smith, Dip '80, in Mozambique, and Doug Johnson, Dip '74, just returned from the Sudan. Their stories are elsewhere in this Journal.

Note: We are looking for lists of class members and addresses for all Diploma years, especially between 1966 and 1976 for the Macdonald Branch of the McGill Graduates Society. If you have a class list or even a few addresses, please send them to Jim Currie, Diploma in Agriculture Program, Macdonald College, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Que. H9X 1C0

Seeking Solutions

Getting the lead out may not always be possible, especially in Quebec orchards where lead arsenicals have been used repeatedly. In fact, **Professor Bill Marshall** of the Department of Agricultural Chemistry and Physics feels such lead residues may interact with other agricultural chemicals such as fungicides, insecticides, foliar fertilizers, ripening agents, etc. Further, inorganic lead in the soil may convert to more toxic organic leads.

Professor Marshall plans to follow through on lead changes and to use new analytical techniques to keep track of the lead found in our orchards. He also plans to find out if laboratory assays of the interaction of chemicals, especially fungicides and foliar fertilizers, can be done. Such laboratory bioassays are much cheaper than field studies, and if the procedures work, more chemicals can be run through the system, allowing producers to select those combinations most useful for them.

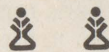


The recent vomitoxin scare that resulted in condemning much of Quebec wheat for feed purposes seems to have abated, but perhaps only until more information becomes available. **Professor Eduardo Chavez** of the Department of Animal Science is looking at the performance of vomitoxin-contaminated wheat on hog production. Vomitoxin is a mould

metabolite produced by *Fusarium graminearum* which often is associated with the feed refusal and vomiting in swine.

Fusarium infected wheat is produced when climatic conditions, namely low temperatures with high moisture, are favourable to mould growth. The contaminated wheat when marketed is generally downgraded and its use in animal feed is limited for non-ruminant animals, especially for swine diets. This can be a problem both for cereal and for swine producers.

Results of the research by Professor Chavez should help Quebec farmers meet the challenge of potential vomitoxin problems. Mouldy wheat containing high levels of vomitoxin should still be a valuable feed ingredient for animals if it is used cautiously and restricted according to our best understanding of its value and limitations.



We Canadians import 70 to 75 per cent of our requirements for tomato and pepper. When Quebec produce arrives on the market (generally mid to late season), prices are inevitably low. A forward shift of two weeks could result in a 50 and 120 per cent increase in the selling price of pink and red field-grown tomatoes, according to **Professor K. Stewart**, Department of Plant Science. Professor Stewart plans to try and increase maturity of tomatoes, pepper, and cauliflower through the use of plastic mulch and windbreaks. A side benefit may be reduced soil erosion and better water use efficiency for Quebec farmers.



The extensive records of the Macdonald Dairy Herd Analysis Service (DHAS) will be used by **Professor Flan Hayes** of Animal Science to determine if milk cell counts can be related to conformation of the animal. Cell counts in milk have been recorded in Quebec DHAS herds and have been used as an indication of milk quality and the health status of the udder. Analysis of cell counts will be related to udder characteristics (such as udder texture median suspension, fore-udder, fore-udder attachment, etc.) and culling decisions by the farmer. This should improve our understanding of how data on milk cell counts should be used, thereby leading to higher quality milk and reduced milk losses due to udder diseases.



Professor Flan Hayes of the Department of Animal Science hopes to use DHAS records to evaluate dairy sires for milk protein percentage. As a consequence, many more records will become available for use in sire evaluations, meaning that sire proofs will have higher repeatabilities, and many more sires will be proven for protein percentage. The CIAQ has requested sire evaluations for protein percentage for several years. In recent years these have been computed by Macdonald College and have been published in CIAQ sire catalogues. The more rapid evaluation of sires will help in the sale of semen in foreign markets, particularly the European market.

newsmakers on campus



Photos by Charles Fournier

FOUNDER'S DAY

Founder's Day '84 had a slightly different twist with the presence of Jim Fanning of the Montreal Expos providing the entertainment. Jim's comparisons between baseball and agriculture, if not accurate, were cer-

tainly entertaining and very amusing.

Although he was forced to leave part way through the evening (due to a viral ailment), we were again honoured to have Dr. David Stewart, heir to Sir William Macdonald, join us on the occasion of the 153rd anniversary of the birth of our illustrious founder.

HONORARY DEGREE

Margaret Scott McCready will be the recipient of an honorary degree from McGill University at the June 1 Convocation of the Faculty of Agriculture and School of Food Science at Macdonald College.

"Peg," as she is known to her friends, graduated from the University of Toronto with a B.A. degree in home economics and a M.A. degree in psychology. She then went to the United Kingdom to work with Lord Boyd-Orr, a well known nutritionist. She obtained a Ph.D. degree in 1946 from the University of Aberdeen for her participation in the Carnegie Diet Survey.

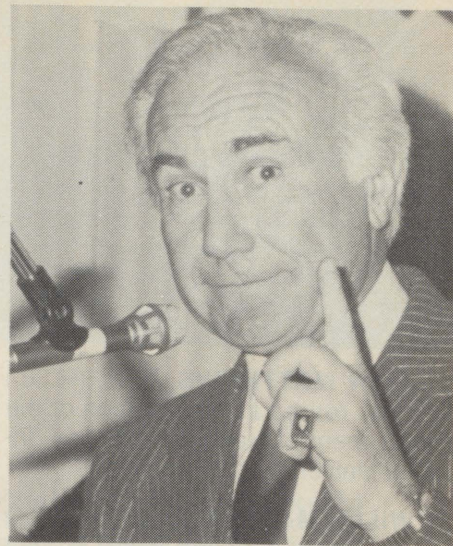
In 1939 she was appointed as Director of the School of Household Science at Macdonald College, where she remained until 1949. She was then appointed as Dean of Macdonald Institute, University of Guelph. After retirement in 1968 she went to Ghana for two years as Chairman of the Department of Home Science, University of Ghana.

In 1981 Dr. McCready was appointed a Member of the Order of Canada. Her many friends and admirers will be delighted to learn that McGill University is to grant her a degree *honoris causa*.

PROFESSOR ARCH JONES coordinated a presentation to more than 100 maple producers and officials of the Ontario Maple Syrup Producers Association at South Lancaster, Ont. He also presented an illustrated talk on "The Maple Dieback Phenomenon in

Quebec" to more than 100 members of the Chateauguay Valley section of the Quebec Farmers' Association in Franklin Centre.

The Department of Entomology enjoyed a "flying visit" from former stu-



Jim Fanning

FIRST WOMAN PRESIDENT

"Wow!" was the first reaction of Lois Fowler of Richmond, Quebec, to the news that she is the first woman President of the Students' Council. Lois, who was elected on March 15, 1984, has been very active in campus life, particularly with the Woodsmen and the Livestock Clubs. She said that she ran for the position of president because "I felt I wanted to contribute in a lasting way to student life at Macdonald."

A Dip '80 graduate, Lois Fowler returned to Mac in 1981 to study in the Home Economics B. Ed. program but decided to switch after one year to her first love agriculture. She is now majoring in general agriculture and hopes to graduate in 1985. With McGill University celebrating the 100th anniversary of the first woman graduate this year, it seems fitting that we at Macdonald have a first Woman President of the Students' Council. Congratulations, Lois.

dent **HABIB KHOURY**, who was on his way back to Niger for another tour of duty. Other visitors to the Department included **WAYNE FAIRCHILD** from the University of New Brunswick and **ABDUL MATIN** from New York City.

DR. SHIRLEY WEBER, Director of the School of Food Science, attended the 5th Biennial Kellogg Nutrition Symposium in Toronto in March.

PROFESSOR ELLIOT BLOCK of Animal Science presented information on the utilization of haylage by dairy cattle to the QFA in Cowansville.

off campus

LILLIAN MATTHEWS, B.Sc. (H.Ec.) '50, has retired as chairperson of the Department of Home Economics, Indiana University, Bloomington.

J. WILLIAM RITCHIE, B.Sc. (Agr.) '51, president of Scotia Bond Co., has been made a Director of East Coast Energy Ltd. Halifax, N.S.

VERNON G. MacKAY, B.Sc. (Agr.) '54, M.Sc. (Agr.) '56, has been appointed Director of Marketing for East Chilliwack Co-operatives, a British Columbia agriculture and manufacturing company.

GRANT CAMERON, Dip. Agr. '56, was recently elected to the Ontario Milk Marketing Board.

DR. GORDON MACEACHERN, B.Sc. (Agr.) '57 and former Chairman of the Department of Agricultural Economics at Macdonald, has been appointed Deputy Minister of the B.C. Ministry of Agriculture and Food.

JOHN van ABBEMA, B.Sc. (Agr.) '63, has been appointed Regional Manager for the Atlantic provinces of the Farm Credit Corporation, Canada.

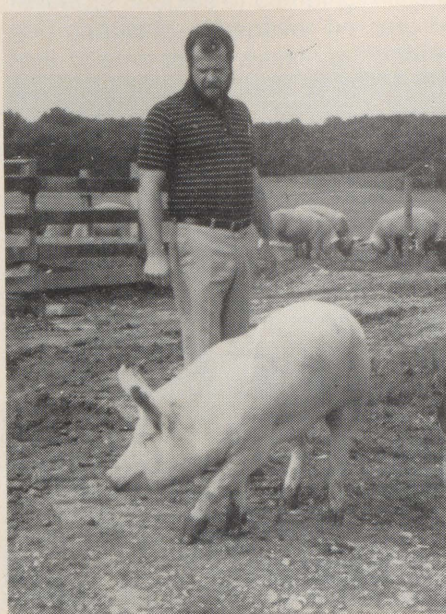
GRANT COLPITTS, B.Sc. (Agr.) '65, of Salisbury, N.B., is one of the Farm Representatives on the CANAGREX Policy Advisory Committee.

JAMES W. HARRIS, B.Sc. (Agr.) '72, is the new ag rep for the P.E.I. Department of Agriculture's West Prince District Agricultural Office.

JOHN HIGGINS, B.Sc. (Agr.) '66, M.Sc. (Agr.) '73, was appointed chief engineer in the Extension Branch of the N.S. Department of Agriculture and Marketing.

RONALD GAUTHIER, B.Sc. (Agr.) '76, has been appointed Field Sales Manager, feed additives and animal

health products division for TUCO Products Company.



Tom Hartsock

NEWS FROM MARYLAND

I'm still working for the University of Maryland but my duties have changed somewhat. I now teach two courses, Swine Production and Graduate Seminar, and spend the rest of my time doing swine research. Good technical help and liberal use of the telephone enabled me to keep the research going even when I was laid up for over six months with a broken disk. In addition to my University work, I continue to work with a local farmer on a contract to produce miniature pigs for cancer research by the National Institute of Health. We've completed a 2½ year contract and I'm bidding on a bigger one. If I win that bid, Charlie and I will probably buy a small farm to carry out the work. Hope to visit our Canadian friends next summer.

Tom Hartsock,
(former professor in Animal Science.)

IVAN HERRETT CROWELL was given the Distinguished Citizen's Award on February 29, 1984, by the Fredericton Chamber of Commerce. Dr. Crowell was a lecturer in the Department of Plant Pathology at Macdonald from 1937 until 1943, at which time he became the Director of Handicrafts, a position he held until 1946 when he became Director of Handicrafts for the Province of New

Brunswick. As Director he oversaw the development of the Fundy National Craft School and the N.B. Craft School and Provincial Artisans, an organization that involves the handicapped in the production of handicrafts. He left that position in 1969 and began studying pewtersmithing and became the first professional pewtersmith of Canada. He has more recently turned his attention to weaving and has done tapestries for various institutions, including the University of New Brunswick.

deceased

DAVID MACDONALD STEWART

At the time of going to press we received the sad news of the death of David Macdonald Stewart. David Stewart, 63, son of Walter M. Stewart and May B. Sharp, died on April 27, 1984. The funeral service was held in Christ Church Cathedral in Montreal on May 2, 1984.

Dr. Stewart is survived by his wife Liliane, his children Diana, Catherine, Victoria, Elizabeth, David, five grandchildren, and his two sisters, Mrs. T.H.P. (Beatrice) Molson, and Mrs. Murray (Kathleen) Mather. The Macdonald community extends sincere sympathy to the members of Dr. Stewart's family.

Further details on David M. Stewart's life and philanthropic endeavours, including his strong and dedicated commitment to Macdonald College, will appear in the August issue of the *Macdonald Journal*.

GREEBA (WILLIAMSON) FINDLAY, Dip. PE '18, at Montreal, on January 9, 1984.

RUTH E. (McEWEN) FLEMING, B.H.S. '33, of Napanee, Ontario, on February 16, 1984.

WILLIAM B. CLEMENTS, B.S.A. '34, of Leesburg, Florida, on January 5, 1984.

MELVIN B. MOORE, B.S.A. '34, of Fredericton, N.B.

GILPATRICK, JOHN DANIEL, B.Sc. (Agr.) '46, on March 3, 1982.

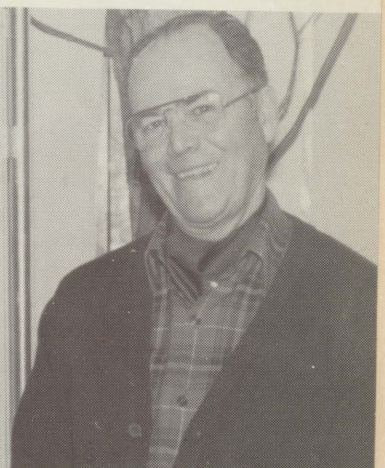
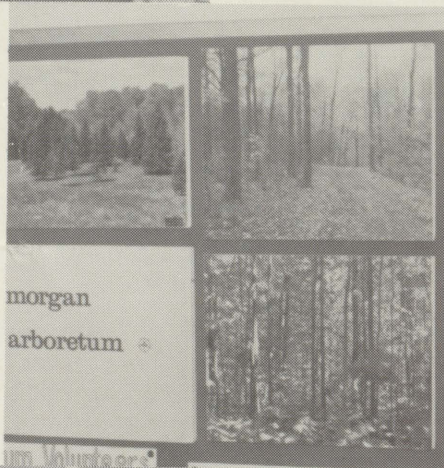
MARY F.S. (HILL) PURDY, B.Sc. (H.Ec.) '49, of Amherst, N.S.

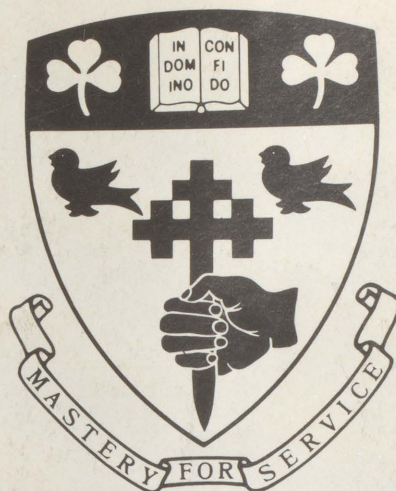
Former Nova Scotia Agricultural College students welcomed Ian Fraser with coffee and doughnuts in the Faculty Lounge.



Dr. K.F. Kwai Hang Ng of Animal Science and DHAS with Drs. Atwal and Andy Lee, B.Sc. (Agr.) '61, of the Animal Research Institute, Ottawa, and Drs. Douci and Campos who are in agricultural research with Embrata in Brazil.

The College Royal and Livestock Show were a great success this year. At right, Mac graduate Donald Adamson, B.Sc. (Agr.) '37, toured the displays in the Centennial Centre and "found them extremely interesting." Below, a break in the action at the Livestock Show gives judges Ken Beervort of Brome and Heather Kinkaid of Ayer's Cliff, first row centre, a chance to compare notes. To their right is Marg Zillig, who won the Jim Houston trophy, and Lois Fowler, who was recently elected as Macdonald's first woman President of Students' Council. Among the other spectators were Roy Simons and Ernest Kinkaid, second row. Martha Robinson was the Grand Champion Showman.





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